SCOOP!

A Strange Tale of Plagiarism, Journalists
and Damage Limitation
But Not Necessarily in That Order.

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What Actually Happened?

> *Today, in Europe and America wherever chemicals are likely to become the subject of criticism, the companies move in, balancing, propagandizing, controlling, mediating protests, funding pseudo-scientific research, buying people off and funding social ventures to enhance their reputation.* (1)

> *In his 1983 Harveian Oration, Sir Richard Doll warned against environmentalists, who might "whip up irrational prejudice, unfounded in science".* (2) *Again, in 1992, writing in the* Daily Mail *at the time of the Rio Summit, Doll warned that we may be seeing "a new attitude emerge; an irrational ideology opposed to science, to industry and to progress."* (3)

On Friday December 8, the *Guardian* newspaper and Radio 4's *Today* programme both esteemed British journalistic institutions ran stories about Sir Richard Doll, the world's greatest dead epidemiologist, and his corporate funding. Neither the Newspaper or the radio report mentioned a paper published a month before by the *American Journal of Industrial Medicine* (4) which dealt specifically with claims that Doll had received large amounts of money in consultancy fees from Monsanto. Both items ignored not only the *AJIM* paper, but also the past eight years' research that I have carried out into the man and his industrial funding. The stories plagiarised, distorted and devalued research material that I had presented in 2003. This 'file' looks at how this happened.

I was angry. Who wouldn't be? When it came to fighting back, however, I was suddenly at a loss. How do you get the genie back in the bottle once it has been spun round the globe? And there was another part of the problem; did I want to get the genie back in the bottle? Shouldn't I be pleased that someone had dragged Doll's malfeasance into the media. On the other hand, this wasn't just a matter of 'first past the post', not only had I been terribly wronged but so had all the other people who had worked hard in different fields to articulate a clear and watertight case against Doll.

As a way of fighting back, I considered Serge Lang and his 'files' (5) which I admire as combative strategic documents, but these having been cultivated in the high intellectual climate of academia, weren't exactly right for me. I decided to put together a document that was similar to Lange's files but which by necessity dealt less with 'evidence' and 'proof' and more with feelings.

Now I am a writer. Previously, in what seems like another life on the same shoe-string, I was a political campaigner from the time of student uprisings in 1968 until the early 1990s. These days, I just write. My writing makes neither me or my family any money so we live as close to the poverty line as is possible without actually being poor. I have written some nine or ten books, (6) as well as some essays and papers. Since 1993, I have concentrated on writing generally about medicine, the pharmaceutical and insurance industries, drugs marketing, medical epidemiology, and occupational and environmental illness. Rarely has my writing strayed beyond an analysis of power in society.

Being neither an academic or a journalist but having been an independent investigator in problematic social areas, I have found throughout my life that I have little protection. In fact, I could say that until very recently and during almost the whole of my career as a writer and campaigner, very few of the projects I have initiated have not been exploited or expropriated by media workers of one kind or another. When I was working on campaigns, while some other person's life was the focus of injustice, it was not possible to be offended by the exploitation of information or life experience; this scavenging is after all the life blood of the journalist. Now, however, since I have been writing full time, working for myself, trying to be a better investigator and a better writer, now, I don't take kindly to the expropriation of my work.

In 1995, a couple of years after I published *Dirty Medicine* (7), considerable documentation on Richard Doll came into my possession and I began writing up the story of Doll's relationship with the industries that had funded his research. A small part of this analysis was published over six pages in the *Ecologist* in 1998, as 'Sir Richard Doll, A Questionable Pillar of the Cancer Establishment'. (8) This article was the first 'across the board' critique of Doll's research and its industry bias. (9)

As soon as the *Ecologist* article was published, I found myself drawn into an Alice in Wonderland world. I met or corresponded with many people who had been critics of Doll for years. I received phone calls from epidemiologists around the world, pointing out that I had missed this or that Doll dereliction. I inhabited an unstable universe in which I appeared to be the only person publicly voicing an extended critical narrative of Doll's work.

As time went by I was in contact with a larger number of academics and lay people who felt that they had been wronged by Doll, or that their academic public criticism of him had been censored. Because there were a wide range of people and organisations that had already shaped a critical view of him, I decided that I would concentrate, for the moment at least, on only one aspect of his work and industry linkage. I did however write one longer essay about Doll and asbestos, in which I tried to identify a pattern in attempts by industry to manipulate health information. (10)

In 1985, an Australian Royal Commission sat to inquire into whether or not Agent Orange, used as a defoliant and chemical weapon, had affected the health of Australian service men and women – and military dogs - during the war against the Vietnamese. At stake were the reputations of Monsanto and Dow chemical companies, that manufactured the Dioxin-laden chemical.

Lennart Hardell, a Swedish clinical epidemiologist already the chemical industries enemy number one, for his role in having dioxin based herbicides banned in Sweden, was one of those who gave evidence to the Commission. Inevitably he had a bad time on the witness stand, to the extent one might have thought it was he who was on trial for murder.

When the inquiry was finished, and Judge Evatt who had chaired it wrote the final report, he perhaps not surprisingly found in favour of Agent Orange against health-damaged service personnel. What did seem surprising to many, however, was the fact that the judge's final report was lifted, almost word for word, from Monsanto's submission. (11)

A few days after the circus had dismantled it's big top and taken to the Australian roads, a letter arrived for Judge Evatt from England from Sir Richard Doll. Unbidden, it appeared, Doll had written, first to congratulate Evatt on his masterly Report, and second to suggest that, following the judgement, there was even more reason why the work of Lennart Hardell should be struck from the academic record. (12) The letter, fawning and abject, is as sickening a piece of chemical warfare memorabilia as you could find. The writing of this letter was a clear sign that Doll had sold his soul, and his name, to Monsanto. The relationship between Doll and Monsanto was symbiotic, Monsanto kept Doll great so that in turn the authority of his representation would earn

them more profit and greater protection. The letter was penned by perhaps the world's greatest epidemiologists and was therefore of immense use to Monsanto who reproduced it across Europe. North America and Australia on the pages of the world's most prestigious newspapers.

Hardell and his then colleague Olav Axelson bravely stood firm against this tsunami of propaganda and character assassination that followed the Commission. Never tiring of the battle that Doll and Monsanto brought to them they even introduced a hint of humour to their fight-back, coining the word 'epidemonology' for Doll's professional work.

Looking back on Hardell and Axelson entrenched and fighting for their professional lives, with the rustle of money changing hands on all sides. I made up my mind in 1998, after writing the *Ecologist* article, to find the cause of Doll's letter, the reason for his infamy. My determination had two engines – to expose the letter as the most gross form of corruption, and by explaining it's origins to show Hardell and Axelson to be honest men.

By an odd twist, explaining the letter turned out to be more Raymond Chandler than Michel Foucault. In 2002, Doll deposited his remaining papers, the notation to his projects stretching from the immediate post-war years to the 1990s, in the Wellcome Library. (13) As soon as I obtained the index to these, I began to isolate the material that might give a clue to this conundrum. Then, searching through the papers I had isolated, I found two exchanges between Monsanto's epidemiology director, Bill Gaffey and Doll, dating from 1986, regarding the renewal and the acceptance of daily consultancy fees offered by Monsanto and accepted by Doll. The fees which Doll would ultimately have earned over a 20 year period were increased from $1,000 a day to $1,500 with these letters. With respect to the letter penned to Judge Evatt, rarely could such a brief missive have been worth so much or been valued so highly. Just like the later Picasso, Doll's doodles were earning him thousands of pounds.

In 2003, I finished two long essays, *Company Men Part I: The unbearable lightness of bias* (14), and *Company Men Part II: Doll, death, dioxin and PVC*. (15) The first was mainly about epidemiology and PR companies. The second more specifically about Doll and the evidence that he gave on behalf of Dow chemicals in the year 2000,

against claimants, and relatives of those who had died or suffered brain tumours while working in the production of vinyl chloride.

Because I am sometimes motivated to write by obscure reasons, I often have difficulty placing my work. I sent these two essays to people whose opinions I valued, just to read and to comment on, and I promised one to Marco Mamone Capria's forthcoming Science and Democracy Conference in Italy. (16) Mainly I saved both essays for two volumes I was preparing on vested interests.

While writing the first essay, I came across a campaigning organisation with a good newsletter called *Hazards.* (17) I was so impressed with *Hazards* that I sent Rory O'Neill, their organiser copies of the papers. with a note suggesting that he might want to use parts of them in a variety of ways. I was easy about what he did with them, I told him, as long as he discussed any use and accreditation with me. A couple of weeks after I sent the email, having heard nothing, I emailed O'Neill again, suggesting that he might at least acknowledge my 'gift'. His email back to me brimmed with that 'I'm a very busy man and think that I do really well to keep things together here' approach, which I have never been able to master. I forgot about Rory O'Neill and *Hazards*.

Marco Mamone Capria placed the Doll and Vinyl Chloride essay on the Science and Democracy website (18) to be read by anyone interested who Googled, 'Martin Walker, Doll vinyl chloride'.

Fast forwarding to the end of 2005, I had almost finished two books in the intervening period, when Lennart Hardell approached me about making a contribution on Doll to a paper discussing 'Secret Ties' between academics and industry. The paper, authored by five people, was to be submitted to the *American Journal of Industrial Medicine*. As my contribution to the paper, I chose the details about Monsanto's payments to Doll and their surrounding research context.

The paper was quite unwieldy with five authors, but after a lot of backing out and turning in, aligning itself with the kerb, it finally parked itself in a tight space. Once it had been delivered to the journal ironically, given the nature of the paper, a battle began, to secure its publication. After almost six moths of sometimes tense silences, while the paper, having been accepted, apparently lay in the journal's legal department,

it was finally published, initially on the internet, at the beginning of November 2006.(19) With this publication, I was gratified that the results of my investigation had at last found a home in the academic record.

As the paper came to the attention of other academics and people in general, Lennart as the lead author, received a number of congratulatory emails. On the 22 November, I received two emails from a Conrad Murray, (20) asking if he could talk to me about the influence of the two Sir Richards, Doll and his long-time colleague Peto, on cancer and the perception of cancer in Britain. I obviously thought that Murray had contacted me because he had read the *AJIM* paper; in a way he did. I caught up with him that evening at the offices of his organisation *InjuryWatch* (21) and had a relatively pleasant half-hour conversation with him. There were aspects of the conversation that snagged in the mind of my experience, and the fact that Murray had a little shuffling giggle of a laugh, which seemed to hint that he knew things that he wasn't revealing, left me very slightly wary.

As to the content of the conversation, I think, Murray began by suggesting that I might help him, or an undisclosed 'them', with an article, or short television news item about Doll. It must, he suggested, be done quickly if it was to have real impact before the journal paper was published in hard copy. I trawled him over my other references and writings, which he claimed not to have seen. When I told him that I thought that, in order to do justice to the subject, it had to be tackled at length, he agreed and reassured me that he (or they) had the resources to make a film. We ended the conversation by agreeing that I would send him the costing for a treatment of a TV documentary about Doll and his links to industry. I e-mailed the costing to him the next morning, Thursday 7 December. (22)

In fact, Thursday appeared to be a day full of promise all round for me. I received an email from Lennart Hardell, informing me that he had been interviewed by both the *Guardian* and the BBC Radio 4 *Today* programme and that coverage of our paper would be presented in both on the morning of Friday 8 December.

Friday, however, was not a good day, but turned out to be a false dawn. Sarah Boseley's front- page article (23) stated the fact of Doll's payments from Monsanto and followed this with a series of short quotes, all except for one, sympathetic to Doll and

his cause. The general impression given was of a storm in a teacup, that times had changed and Doll's lack of disclosure back then had been in no way improper. One remark by Peto raised unanswered questions: he said that the campaign to link Doll to industry funding was organised by environmentalists, and hinted that they had some dark purpose.

The article seeped only slowly into my consciousness. There seemed to be a strange conflict between the acceptance of fact - Doll had taken money from Monsanto, and the gross distortion – that the information was now 'revealed' by Sarah Boseley and the *Guardian*. Overall, like a film fade, the real meaning of the article simply turned to white paper before your eyes; while any *issue* involved disappeared.

Because, at that point, I was still thinking of the AJIM paper, it didn't strike me head on that Boseley had quoted no sources at all in her article. It wasn't until later that this point began to roll around in my mind throwing off questions.

Not only had the fruits of my hard work appeared to have been plundred and plagiarised, but in some odd way our paper 'Secret Ties' seemed to have been rendered invisible. Within 24 hours, the relatively potent post modern narrative about which I had written in my 2003 essay and which the five authors had written about in 'Secret Ties', seemed to have been dismissed and erased. Understanding the way that the media trivialise everything, I sensed that there would be no developing debate in Britain about Doll and his now very public ties to industry.

As it happened, earlier in the year (2006), I had had a brief email exchange with Boseley. She had reported, seemingly without question, a piece of research which suggested that hormone replacement therapy (HRT) was less damaging than two contemporary critical studies maintained. As I had just finished a book on HRT and all the marketing indulgences contrived by Wyeth, (24) its major manufacturer, the article, which I was sure hid research conflict of interests, was of particular interest to me.

After a five minute search on the internet, I found the researcher's links and funders which, inevitably, included Wyeth. The company was trying, at that time, to recapture the market in HRT, which had taken a knock after two important studies had concluded that women who took it were at increased risk of breast cancer, heart disease, strokes

and deep vein thrombosis. To my over simplistic mind, any lack of disclosure of vested interests in research inevitably increased the possibility of damage to women's health. I wrote a strong letter to Boseley stating my case. She replied that she only had time to report news and no time to research conflict of interests. I should have known then that any real exchange was pointless but I continued to challenge her until with a another exchange, we both agreed never to speak to each other again!

Desperately angry at her article on Doll, I broke my promise and wrote Boseley a rude email. (25) Her reply was surprisingly mild, (26) and apologetic, as if she didn't want to play ball, defend her position or become embroiled in an exchange with me. Boseley, however, disclosed one thing in her pliant letter back to me. She had, she claimed, received a call late on Wednesday 6 December from a journalist called Fergal Parkinson, (27) who told her that an item about Doll and his Monsanto money would be on the Radio 4 programme *Today* on Friday morning. He advised her to get a quick front page article together on the item – he would of course send her all the necessary material.

By Friday afternoon, I was feeling much more cynical about the whole matter. Things were beginning to occur to me. Lennart emailed saying that the item about Doll was in 38 Swedish newspapers. I found the idea that Sweden had 38 newspapers more surprising than the fact that Doll and his Monsanto money was in all of them! And then there was something truly alarming, something that Lennart had not considered I began to realise that not just the *Guardian* article, and the Radio 4 *Today* item, but 34 Swedish newspapers had failed to mention our paper in the *American Journal of Industrial Medicine*!

I had an increasing sinking feeling in my stomach. I had come to associate this feeling with the *Guardian* since the Clive Ponting affair 20 years ago, when the paper's editor gave up one of his own journalist to the police. I wrote round to a couple of people, asking if they would consider writing letters to the *Guardian*. In the main, it wasn't that I wanted recognition for my work, but that I wanted the debate about Doll opened up. In the event, I knew personally that two people, a university professor and a well-considered journalist, wrote letters to the Guardian that Friday. (28)

The following day, Saturday 9 December, neither of these letters appeared in the Guardian. However, a pro-Doll letter from five scientists did appear. Their long and collectively-signed (29) missive put the population straight about Sir Richard, slapping his cadaver on the proverbial back, like pint drinking colleagues in an Oxford bar. Sir Richard, they contrived to imply, was second only to Mother Teresa, in his philanthropic giving. In fact he was a kind of academic Robin Hood giving away hundreds of thousands of pounds which he had collected from the world's biggest chemical companies. Much of this money, they pointed out, had been donated to Oxford's paradoxically-named Green College, which Doll had helped found. Anyone who knew the facts would have blanched at this statement, understanding that Doll and multinational corporate interests, had set up Green College to teach the sons and daughters of industry a new and more balanced approach to the epidemiology of public health.

Most importantly, however, the real issue about Doll and industry funding, had been drowned out by the din of applauding industrialists. The real facts behind Doll's shameful career, which was simply one long denial for the damage done by industry to the workers and citizens of Britain, North America and Spain, was never going to be rationally discussed in Britain.

Be Aware, Be Very Aware

Whatever your discipline, knowledge base, or even your reading, in the contemporary world, unless you understand in a fairly detailed way, the spin placed on knowledge by those in power, you will always remain ignorant. Spin is now the developed world's first language. The lexicon and the strategies change as fast as a kids thumbs on video game remote.

Over the last couple of year, I have become aware of a new strategy in supporting industries which damaged public health. This strategy involves admitting crimes publicly, relegating them to the 'bad old system', while continuing to commit them deep into the future. This is a strange and relatively new weapon of mass confusion (WMC) shouldered by agencies of the State and journalists. The essential idea is that if you confess loudly enough your most serious crimes, the people will think a number of things. First they will think you honest. Second, they will probably give you the benefit of the doubt when you say that they were not considered crimes when you committed

them. Third, the people will realise with relief that a line has now been drawn in the sand, these issues have now been dealt with, and are only referred to now as ‘old hat’ and of ‘no news’ value.

I was first acquainted with this strategy, on reading the report, issued by the House of Commons Health Committee, *The Influence of the Pharmaceutical Industry*. (30) On the surface this report was a devastating indictment of the pharmaceutical industry in Britain. It had many of newspapers and nearly all of our transatlantic cousins in the Health Freedom Movement, calling for the canonisation of British parliamentarians, or ‘lawmakers’ as the new post 9/11 lexicon would have us characterise them. Just under the surface however, the report dissolved into a watery excrescence that ran through your fingers when you picked it up.

No one had ever, at any time, any intention of acting upon the things that the report agreed and shouted from the rooftops, were wrong with the pharmaceutical industry. In one of those amazing surreal, tricks which only the truly guilty are capable of, pharmaceutical executives and politicians beat their chests in public and identified their terrible guilt. ‘My name is … and I am a pharmaceutical executive’ they said before listing their past misdemeanors. The people of course loved it and turned to each other saying, ‘Hey man, he’s right isn’t he. He’s really put his finger on it. Yeah, that’s what I thought all along. Thank God change is coming and there are still honest geezers in world’.

Recently in Britain, we have seen the same device used by Ian Gibson MP, who off the top of his own head organised a parliamentary Inquiry into ‘science and ME’. When the report appeared, it identified many of the things which certain doctors and academics were guilty of – suggesting ME existed only in the minds of ME sufferers - and so established them in the official record as being admitted. (31) The confession however, was not completed, for there was no repentance or penitence. When it came to recommendations for action, in reality, it was clear that Gibson and others would rather pull out their own toe nails with pliers than obtain or provide the funding for any new way of doing things. Gibson has since moved on to set up another ad hoc inquiry, with no powers, to look at the risks of mobile phones and masts.

I believe that British society is presently highly censored by it's government and all kinds of secret cabals which protect, industrial interests. As the best loved son of industrial epidemiology, Doll was protected from any kind of criticism throughout his career. When I wrote my article in the Ecologist in 1998, I received a letter from Doll's lawyers, then later an article appeared on the front of a Public Health science newsletter, accusing me of slander. I know no one who has had critical things published about Doll whose work has not been thoroughly obstructed by lawyers. One excellent North American book was refused publication in Britain – despite the relatively short references – because it made slightly disparaging remarks about him.

Unfortunately, regardless of the blather of his supporters, we will probably never know the full perfidy of Doll's work and it's value to the British and North American industrial states. What is more, anyone who tries to inquire into this truth will inevitably be marginalised, censored and even threatened. When it comes to understanding the truth about Doll's work, how many lives he saved or deaths he caused, political and industrial power will fight tooth and nail to preserve his reputation.

Definitely a Cock Up but by whom?

This conundrum – of the *Guardian* article and the *Today* programme item - is not simply to do with my work, or, for that matter with the assertions of the other authors of the *American Journal of Industrial Medicine*, it is about something much bigger.

The day following my evening phone call with Conrad Murray, I went to the InjuryWatch website. I went because I had come to the conclusion that there couldn't be an organisation called InjuryWatch; could there? At first I found the anarchy of typefaces and disordered headlines too much, but after a few clicks, I found the headline to an article about Doll and his industry payments, written by Conrad Murray and Rory O'Neill. It was a long article, around 10 pages (32). I was immediately struck by the fact that the article had no references, despite the fact that much of the material had been simply lifted from my work and the work of others.

I find it mystifying that a journalist working for a trade union campaign and a member of the International Journalists Association, such as Rory O'Neill, could put his

name to an article, the body of which has been culled almost entirely from other people's work. Further, why did these two journalists not contact me or any of the many other people who had written critically about Doll, so that everyone who was interested could add their weight to any campaign? Finally, why, when they saw that the *AJIM* had published the Secret Ties paper, did they still try to represent themselves as the researchers responsible for discovering the letters about Doll's Monsanto consultancy? Why did they – or someone on their behalf – lie by ommission to the *Guardian* and the *Today* programme?

Although I was upset about all this, on a very personal level, on reflection my annoyance stretched further as I questioned the professionalism of Rory O'Neill and Conrad Murray. I felt a quite decisive knife between my shoulder blades. After all, while you expect this kind of destabilising tactic from corporate lobbies, you do not expect them from people who are apparently on your side.

And then there is Fergal Parkinson, the 35 years old bright but overweight BBC journalist. Did he have any idea that the story that he peddled to the *Today* programme and the *Guardian* was not only three years old, but also the original property of another writer?

For a moment, let us imagine that that I can happily forgive O'Neill, Murray and Parkinson their theft of knowledge and their plagiarism. Let us grant them their moment, their front-page story in the *Guardian* their few minutes of fame on the *Today* programme. Have they succeeded in opening up the debate about Doll and the corruption of epidemiology? The jury is still out but I don't hold your breath for a guilty verdict.

On the face of it, this was a story that could run and run, that would go from paragraph to pages in two days flat. The story should have heralded the end of Doll's iconic stature in British science. It didn't, mainly because the kind of journalist that in the 1950s and 1960s wrote for *Picture Post*, the *Sunday Times* or the *Express*, the great campaigning journalists of the past, don't exist today. The newspaper today is just an amalgam of titbits, a diary of overheard gossip and a blog for personal opinions that are rarely shared collectively.

Sarah Boseley, like an overworked general practitioner, seems rarely to have the time to do her job. What is more, she considers lack of time a proper excuse for her lack of professionalism. Whatever we put to her in an attempt to find a *reason* why she didn't delve a little deeper into the story before it appeared on the front of the *Guardian* she is bound to feel only one thing: harassed. She doesn't feel it's her role to probe the social fabric, to pick apart the delicate threats of social history. With Sarah Boseley, like so many other professionals today, time is money, and the management of both dictate your career path; intellectual insights are low on the job satisfaction tick-list.

We might question her and her editors about the placing of the article on the front page, when its information had been in the public domain for at least three years. We could question the bizarre journalistic practice of using the term 'The *Guardian* can reveal' as if the information had been passed down to Sarah personally by Tony Blair. We should certainly ponder the fact that the short article, and the 'biographical' portrait that appeared inside the paper, were almost completely sympathetic to Doll, despite the article's damning headline. And at the end of the day, we must ask the most obvious of questions: why did Sarah Boseley not take just a peek on the internet to find out whether or not the information which she was to represent as a major expose, was already in the public domain?

There are, of course, serious repercussions to this journalism out of kilter. If we allow journalists to splash down the mud-chute, exhilarated with the sheer joy of exposing and denouncing people, if we sit back when journalists stop taking notes, ringing up contacts, noting references or even glancing at Google, we stand on the edge of a scary overhang. When journalists begin picking things out of the air, repeating things overheard in corridors, when they rewrite in haste that which has been written with care and deep research, then there is a danger that journalism becomes fiction.

Even when journalists make the most serious of errors, they seem unable to get off their high horse for long enough to question their practices. The Guardian Unlimited website, makes a great deal out of the new role of their Readers' Editor Ian Mayes. Mayes is shown in the quick time, real newsy photo of him, as a chummy man of experience; you would swear that there is empathetic experience in his eyes. The constitutional and almost contractual 'Captain Kirk' blurb about Mayes's new position sounds more than promising, Mayes's job is to:

> Collect, consider, investigate, respond to, and where appropriate come to a conclusion about readers' comments, concerns, and complaints in a prompt and timely manner, from a position of independence within the paper. To seek to ensure the maintenance of high standards of accuracy, fairness, and balance in our reporting and writing. To create new channels of communication with and greater responsiveness to readers, whether by 'phone, email, the internet, surface mail, or through the columns of the paper.

To go where no man has etc … It is now six days since I wrote to him by email and he hasn't yet managed to reply. Perhaps there is a hiccup in retraining journalists and editors. I also complained to the BBC about the *Today* programme item, accusing Fergal Parkinson. Unfortunately, I don't have a copy of my letter because the BBC demands that you send your complaint in on its special form, rather than your own email. The BBC so prides itself on its ability to speak to it's listeners, that it provides a 'tick box' at the bottom of the internet pro forma – 'Do you want an answer to your message?'

To return to Sarah Boseley, while the wisdom of her front page 'hoax' leaves lots of questions hanging, how can we understand why the article was followed by an inside - page, lovingly-crafted biography blog about Doll? Why were none of Doll's high-ranking academic critics asked for an opinion about his Monsanto funding? All of these questions might have been developed on reading the articles that followed a day later in the *Independent* (33) and two days later in the *Sunday Times* (34) followed by the *Telegraph* (35)

While we might ruminate on any of these things, to build a reasonable view of the situation we are bound to let the *Guardian*'s publication the following day, Saturday December 9, speaks clearly for itself. While at least two people wrote short letters to the *Guardian*, defending the history of my work and posing questions about Boseley's article, the *Guardian* printed only the Doll-promoting letter from five scientists (there was a perfectly reasonable but with respect to this discussion, out of context, letter from one reader). Besides being prominent, highly qualified and *obviously* independent, at least three of these signatories have links to the corporately funded Sense About Science or Science Media Centre lobby organisations, which using massive corporate funding, defend corporate science. (36)

The sum effect of the *Guardian*'s intervention on Friday and the following day was: to confirm Doll's retention, for thousands of pounds in consultative fees, by Monsanto, as an everyday practice of little importance, and to shore up his iconic image as a great public health epidemiologist. By making prominent the issue of funding while not exploring any of the issues of science, of environmentally-induced or occupational illness, or indeed public health, the *Guardian* extracted the whole argument about Doll from its scientific context. Finally, by neglecting to make any reference to the recent Hardell paper, that explored other situations of vested interests, the *Guardian* fixed Doll's possible incorrectness over money firmly in a bygone age, making it no longer worthy of inquiry.

There are clear and undisputed differences between journalists and academics. What happened with the *Guardian* and the *Today* programme among journalists, could not possibly have occurred with academics. Had it done so, shadows would have hung over dons, courts of academic inquiry would have sat. As in life science, so in social science - notebooks would have been examined. Not, however, where journalists are concerned. This should have been a major story about Doll and industry interests, about the chicanery that has shaped our perception of cancer prevention, treatment and research in Britain and America. It is the kind of story for which a good journalist working on an honest newspaper would have given their eye teeth and any serious professional would have shared the challenge of the investigation with those who brought the story to the paper.

Today, journalists more than any other cohort of professionals, are responsible for the confusion that surrounds power and its criminality in contemporary society. As Janet Malcolm said in another context, 'Every journalist who is not too stupid or too full of himself to notice what is going on knows that what he does is morally indefensible.'(37)

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5 Serge Lang. *Challenges*. Springer-verlag, New York. 1998. See also the web site of the Science and Democracy conferences, at: http://www.dipmat.unipg.it/~mamone/sci-dem/introduction.htm (last accessed 12.12.06)

6 The last four about medicine and public health are: *Dirty Medicine: Science, big business and the assault on natural health care*, Slingshot Publications, London 1993. *SKEWED: Psychiatric hegemony and the manufacture of mental illness in, multiple chemical sensitivity, Gulf war syndrom, myalgic encephalomyelitis and chronic fatigue syndrome.* Slingshot Publications. 2003. *Brave New World of Zero Risk: Covert science policy in Britain*. Slingshot Publications ebook. www.slingshotpublications.com.2005. *HRT Licensed to Kill and Maim: The unheard voices of women affected by hormone Replacement therapy*. Slingshot publications, London 2006.

7 Martin J Walker. *Dirty Medicine: Science, big business and the assault on natural health care*, Slingshot Publications, London 1993

8 APPENDIX ONE
Martin J Walker. Sir Richard Doll, A Questionable Pillar of the Cancer Establishment. *The Ecologist*, 1998

9. There had already been a good deal of criticism of Doll's work .On asbestos for Turner and Newall. Criticism of his studies of leukemia around nuclear power stations. Superb work on his assessment of Spanish Toxic Oil Syndrome by Bob Woffenden, and his involvement in the Houston and Italian trials begun by individuals whose health had been adversely affected while working in the PVC manufacturing process.

10 APPENDIX TWO
See this author's essay, reprinted here. The Role of Industry in mediating Information about Occupational and Public Health: Towards a General Theory. Available as an e-document from www.slingshotpublications.com. Also published in Italian, in Scienza e Democrazia, (ed)Marco Mamone Capria, Istituto Italiano per gliStudi Filosofici,

Liguori Editore. Italy 2003. This essay is based upon a review of Geoffrey Tweedale's book, *Magic Mineral to Killer Dust: Turner and Newall and the asbestos hazard*. Oxford University Press. England, 2000.

11. This has been written about by a number of people, Including the Irish author, Robert Allen in his book *The Dioxin War: truth and lies about a perfect poison*. Pluto Press, London 2004.

12 Doll to Evett 'His conclusions cannot be sustained and in my opinion, his work should no longer be cited as scientific evidence'. Letter from Richard Doll, Green College, December 4, 1985 to The Hon. Mr Justice Phillip Evatt, DSC, LLB [ref: 40-X-016]

13 PP/DOL [460 files] The Wellcome Library for the History and Understanding of Medicine. Euston Road London. The Wellcome Trust. This library makes visitors sign a statement agreeing that they will not use information gained from the library in writing anything to the detriment of any person referred to in the papers. Not so subtle.

14 Martin J Walker. Company Men and the Public Health, Part I: The unbearable lightness of bias. 2003. Unpublished manuscript available as an e-essay from www.slingshotpublications.com.

15 APPENDIX THREE
Martin J Walker. Company Men and the Public Health, Part II: Death, Dioxin and PVC. 2003. Also available at: www.dipmat.unipg.it/~mamone/sci-dem/contri/walker.pdf.

16 These conferences are held annually. Information at, http://www.dipmat.unipg.it/~mamone/sci-dem/introduction.htm. Two volumes of their proceedings have been published, for the conferences in 2003 and 2005.

17 APPENDIX FOUR
Rory O'Neill and Hazards
Conrad Murray and Injury Watch
Fergal Parkinson and the BBC

18 Ironically, this essay was published in Italian in a volume of Science and Democracy III contributions at almost the same time as the Hardell paper was published in the American Journal of Industrial Medicine.

19 Submitted to Am J Ind Med November 8, 2005/ Revision submitted May 10, 2006/ Accepted May 23, 2006/Copyright May 29, 2006/Proofs July 4, 2006/Appeared as DOI Nov 3, 2006.

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23 APPENDIX SIX
Sarah Boseney article on Doll and Monsanto money
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24 Martin J Walker. HRT Licensed to Kill and Maim: The unheard voices of women damaged by hormone replacement therapy. Slingshot Publications, London. 2006. Can be ordered from high street bookshops or www.slingshotpublications.com

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27 APPENDIX FOUR

28 APPENDIX EIGHT
Two letter which were not published in the Guardian

29 APPENDIX NINE
The letter that was published in the Guardian

29 House of Commons health Committee. The Influence of the Pharmaceutical Industry: Fourth Report of Session 2004-2005. The Stationary Office Limited. London. 2005

31 The Gibson Inquiry into ME and Science has bee continuously reported on the One Click web site, which is presently analysing the resultant report.
http://www.theoneclickgroup.co.uk

32 APPENDIX TEN
The Injury Watch article

33 APPENDIX ELEVEN
Article in the *Independent*
Article in *The Sunday Times*
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36 See this authors, Brave New World of Zero Risk: Covert strategies in British sciencepolicy.SlingshotPublications. www.slingshotpublications.com London 2005.

37 Janet Malcolm, *The Journalist and the Murderer*, Bloomsbury, London 1991.

APPENDIX ONE

Martin Walker. Sir Richard Doll: a questionable pillar of the cancer establishment. The Ecologist. London England. Vol. 28, No. 2, ISSN: 0261-3131. 1998

Sir Richard Doll:
A Questionable Pillar of the Cancer Establishment.

On October 17, 1997, the news programmes and the newspapers made frequent mention of new evidence from three studies supervised by Sir Richard Doll, and originally published in the British Medical Journal, which purported to show that 'passive smoking' caused lung cancer.[1]

That same day, in London's High Court, Mrs. Justice Smith handed down her judgement in the case of John Hill, who had taken a civil action against the owners of a farm upon which he had worked. He claimed that exposure to organophosphate (OP) insecticide at work had adversely affected his health. Mrs. Justice Smith ruled that his ill health was partly at least "attributable to psychological factors". With the exception of Britain's most subversive 6 am radio programme, Farming Today, little publicity was given to the court hearing.[2,3]

Curious double standards

These separate sets of circumstances, occurring as they did on the same day, give voice to a number of issues relating to the way we perceive health and the environment. The first and most obvious is that thirty years after Richard Doll and Bradford Hill published their first epidemiological study on the high rates of lung cancer amongst GPs who smoked,[4] the public are still in thrall to the idea that cigarette smoking is the single most important public health problem we face in Britain.

Secondly, the judgement in the OP case demonstrates something which is difficult to understand within the context of truthful scientific research. It has been recognized for hundreds of years that agricultural and industrial chemicals, especially those of which we have had no evolutionary experience (xenobiotic chemicals), can have serious adverse effects upon humans, but, unlike the public issue of cigarette-induced lung cancer, the history of both academic judgements and plaintiff actions with respect to chemicals is almost a secret history.

Research by the Medical Research Council into the use of organophosphorous compounds predates the work of Doll and Bradford Hill on cigarette smoking." Initial scientific conclusions in the late 1940s and 1950s were not in the least reassuring. There are presently hundreds of OP cases waiting to come before the courts, including over 100 Gulf War syndrome cases. The great majority of complaints involving OPs have been made by farmers who were pressed, by law, between 1975 and 1993 to dip sheep and treat cattle with washes of OP as a deterrent to warble fly. Almost all the cases which have so far reached court have, like cases brought by others suffering from Multiple Chemical Sensitivities (MCS), floundered on two medical, legal and scientific arguments. First, that it cannot be "proved" that exposure to apparently toxic chemicals can cause long-term and ongoing systemic damage to health. Secondly, that any damage caused by chemicals is relative, dependent first upon their method and duration of use, and second upon the susceptibility of the injured party. In this way the chemical company is defended and the sufferer blamed for having a weak constitution.

One question raised by these issues is why the medical research establishment and the State have allowed a confused, unscientific and sometimes almost mystical appraisal of the risk of cigarette smoking to entirely shape the public policy debate over cancer? Why have so many research scientists in developed societies, and particularly in Britain, refused to investigate the chemical causes of cancer, despite their increasingly telling effect upon the epidemiological picture of cancer, ill-health and the quality of life?

In comparing the responses of scientists, doctors and the media to both cigarette smoking, chemicals and cancer, the career and philosophy of Sir Richard Doll emerges as a convincing guide and marker to changing perceptions and modalities.

The Career of Sir Richard Doll

Sir Richard Doll has been considered England's most influential epidemiologist for the last thirty years. Doll first did work on mortality in asbestos workers in the 1950s, producing a paper in 1955[6]. His conclusions came down decidedly on the side of asbestos workers, whose health he said was being put in jeopardy.

In his first Rock Carling Fellowship Lecture in June 1967, Richard Doll stated clearly that prevention of cancer was a better strategy than cure.[7] He considered that an "immense" number Of substances were known to cause cancer. In 1954, tot instance, he stated, along with Bradford Hill, that besides cigarette smoking, exposure to nickel, asbestos, tarry products in gas production, and radioactivity, were major causes of cancer.[8] He believed that cancer rates varied with environment, geography and class, and he argued that poor, working class people, able to afford only a poor diet, were more likely to get cancer of the stomach. In the late sixties, Richard Doll could have been considered a radical.

Following the announcement of a 1968 study, which suggested that more women than was previously realized might suffer complications from the Pill, Doll found himself in a head-on confrontation with both the pharmaceutical companies and the moral hegemony of his profession. The 'medical authorities' chose to interpret his report in such a way as to justify the conclusion that "the new assessment need cause no alarm among the million British women now believed to be using the pill."[9]

In common with other 'public health' scientists of the prewar and immediately post-war periods, Richard Doll considered that workers faced the greatest and most consistent threat to their health in the workplace. In October 1977 Doll spoke out against the research carried out by the National Radiological Protection Board (NRPB) and British Nuclear Fuels (BNFL) into the health risks of the nuclear industry; his message was unequivocal. Research by these organizations, he said, "had not been carried out in a way that would satisfy even an ordinary university department. They did not do what was recognized as necessary in epidemiological studies - analyse all the available data."[10]

Again, in 1977, Doll came into conflict with the medical establishment, when he was outspoken about the yellow card scheme, a scheme used by doctors to report adverse drug reactions to the Committee on the Safety of Medicines. In that year it had become apparent that there were adverse effects to the use of Practolol (Eraldin), a heart drug which was withdrawn after five years, when it became apparent that it caused various illnesses in patients.

The importance of Doll's earlier work in shaping public health policy is beyond dispute. As he has grown older, however, his frequent public appearances on the world stage, like those of an ageing rock star, have increasingly articulated an industry-accommodating view of public health risks.

The Two Paradigms

In the contemporary world, two paradigms vie for ideological power over public health, especially in the area of cancer diagnosis and treatment. The two paradigms do not present whole or homogeneous conceptual worlds; there are conflicts between them and on occasions they confoundingly dissolve into each other. Within the first paradigm, which has for some time been referred to, by detractors, as the 'lifestyle' paradigm,[11] it is held primarily that lifestyles by themselves, and without reference to the environmental conditions in which they are conducted, determine the individual's susceptibility to cancer and other chronic illnesses. For Sir Richard Doll, the leading exponent of this view, the cancer rate is not increasing - nor indeed could it increase, because lifestyles are becoming healthier. In fact, he assures us, in the most important areas cancer cases are now falling and will continue to fall. Indeed, in 1985[12] Doll was of the opinion that cancer could be largely eradicated within the next few decades, which meant, in his opinion, that there was clearly no need for any further corporate or political regulation.

In reality there is a rising level of certain specific cancers, such as male testicular cancer, myeloma, cancer of the bone marrow, female breast cancer, male cancer of the mouth (which has doubled over 30 years), and deaths from cancer of the pancreas, which have increased considerably in women while staying level in men. There have beenincreases in cancer of the cervix and melanoma in the 20 - 44 age group and a rising death rate among men suffering from prostate cancer. In 1990, Sir Richard, discussing these figures, was still sure that on the whole "there is, to my mind, good evidence we have been winning the fight in Britain."[13] He reiterated this same message in 1992, when the Independent reported his views under the title of 'Doctors gaining ground in battle against cancer'.

Nevertheless, Doll favours more cancer research and he is personally very much involved with the Imperial Cancer Research Fund (ICRF). However, like other lifestyle proponents, he insists that the focus should be largely on research into the minutest details of cell biology in order to determine the exact mechanism of carcinogenesis. Doll has stated that major cancer charities like the ICRF should not become involved in education or preventive work. The ICRF, he said, "as its name implies, is there to do research."[14] Needless to say this does not include research into the effects of environmental carcinogens, which the ICRF generally refuses to consider.

The second paradigm, which we might call the 'dissident' paradigm, represents a more socially holistic view of disease. Dissidents argue that many forms of cancer are rising alarmingly. Research as to the exact mechanism of carcinogenesis is a waste of energy and money, for chemical toxicity is partially or even largely to blame for many, if not most, cancers, as well as for the fall in the general level of public health. Dissidents argue that policy makers have got to act now to phase out the production of all reasonably well-established carcinogens.

Though Doll started off as a dissident, one who was clearly concerned with the health of the people he was serving, as his career developed his views gradually changed and he became one of the most powerful and influential promoters of entrenched industrial and political interests.

The Controversies

Smoking and Lung Cancer

Sir Richard first began publishing on smoking and lung cancer with Professor Bradford Hill in 1950. His two most effective early papers, published in 1954 and in 1956[15] recorded the results of a longitudinal epidemiological study based upon 40,000 postal interviews sent out to general practitioners in 1951. The first results analysed the deaths of 789 of the doctors aged 35 and over who had died during the three years of the study. Thirty-six of them had died of lung cancer.

The conclusion, as has been continually reflected in the media, was, and has continued to be, that smoking is responsible for the huge increase in deaths from cancer of the lung. However, some responsible health care workers have asked whether or not smoking was perhaps not the sole cause, but one of a number of factors which might be "weakening the system in a way which makes it susceptible to cancer".[16] Major concerns along these lines have been raised by research carried out in China where the peasant population smokes heavily and where there appears to be little difference in the rates of lung cancer between smokers and non-smokers.

Nevertheless, Sir Richard Doll's first. major study has been bolstered by further studies that have come out with the same answer - lung cancer is almost entirely attributable to smoking. The political, social and economic effects of this singular message are still reverberating, despite the fact that today, lung cancer mortality rates for non-smokers are rising.[17] To a degree, the success of this first work has become a screen behind which Sir Richard has dodged with increasing frequency, to avoid awkward but substantial issues about other man-made carcinogens.

Medical professionals, politicians, and health educationalists, reached a very speedy consensus on this issue, and other lines of investigation were consequently quickly abandoned.

By 1986, when The Big Kill, a 15-volume series was published by the Health Education Authority[18] with consultative advice from Doll, an exact figure of individuals killed by smoking in England and Wales was given as 77,774, even though these deaths included those in which heart disease, bronchitis, and emphysema clearly also played an important role. In 1993 when Sir Richard was interviewed,[19] he cited a figure of 150,000 individuals who died prematurely as a consequence of smoking.

Questions have also been raised about the recorded incidence of death from lung cancer, said to be caused from smoking in the elderly. In the deaths of those over 65 it is exceptionally difficult to assess cause and even more difficult to establish what brought it on. These figures are not even addressed in The Big Kill, because as the

Royal College of Physicians makes clear, "... this could not be done with much confidence, partly because certification of the cause of death in older people, who may suffer from a variety of disabilities, is less accurate than in younger people ... no attempt has been made to estimate the number of deaths due to cigarette smoking in older people".[20]

This is a very weak excuse for excluding the elderly from the study - precisely those people who are most susceptible to cancer, and until recently those who constituted the major statistical group for the disease.

In the USA Doll's thesis has always been rejected by Professor Samuel Epstein, Professor of Environmental Medicine at the University of Illinois, and founder of the Anti-Cancer Coalition, who for decades has fought a lonely battle against the medical establishment on this issue, though today at least sixty other scientists working in the field have now endorsed his position. (see Epstein in this issue) In the UK, opposition to Doll's views came from Professor Simon Wolff, a toxicologist who was, before his premature death in 1995, the most committed of a new generation of scientists. Professor Wolff was particularly concerned about the effects of diesel and petrol exhaust pollution, which he saw as major factors in the development of lung cancer. He said:

"There is no doubt that cigarette smoking causes lung cancer, but there is also no doubt that air pollution, particularly from diesel, is a contributory factor, so important that perhaps without air pollution we would see a much lower rate of lung cancer than we have. For example, in rural China, where people tend to smoke very heavily and where air pollution is much less, the differences in lung cancer rates between smokers and nonsmokers is very small, and lung cancer rates are about one tenth of the lung cancer rates in industrialized countries."[21]

Cancer and Diet

Doll does not accept that air pollution of any kind may be regarded as a cause of lung cancer or of any other diseases of the respiratory tract. These can only be attributed to smoking, which he sees as accounting for 30 per cent of cancer deaths. Nevertheless, he does incriminate various natural - as opposed to man-made carcinogens. In a study commissioned by the American Academy of Sciences, which Doll conducted with his colleague Richard Peto in 1981,22 he identified various natural contaminants of raw food as natural carcinogens produced during cooking. He sees these, together with obesity and the consumption of unspecified refined foods, as responsible for 35 per cent of cancer deaths. In this report pollution and exposure to industrial products are seen to account for no more than 3 per cent of cancer deaths.

Another "natural carcinogen" - alcohol - was incriminated in a report to the ICRF in 1982,[23] as both a cause of cancer of the respiratory tract and of the digestive

tract. By 1983, the accent had shifted to the consumption of fats as a dietary factor in the induction of cancer.

Doll has advised people to consume more fresh fruit and vegetables, though, needless to say, he does not distinguish between fruits and vegetables produced organically and those produced by means of chemical agriculture, which contains all sorts of pesticide residues. Nor does he see the large number of food additives in the average modern diet as playing any role in the development of cancer. On the contrary he has denied this over and over again, notwithstanding the fact that an ever-increasing number of these chemicals have been classified by such organizations as the World Health Organization (WHO) and the Environmental Protection Agency (EPA] as proven or suspected carcinogens. This attitude very much coloured his 1992 keynote address entitled 'The Lessons of Life' at the Nutrition and Cancer Conference in the UK.

Agent Orange

Doll's refusal to accept that any man-made chemicals can cause cancer and other serious health problems could not have been better reflected than in the testimony he gave against the Australian veterans of the Vietnam war whose health had been devastated by exposure to 'Agent Orange'. Agent Orange was a mixture of the two well-established carcinogenic herbicides 2,4,5-T and 2,4-D (the former having since been taken out of production in every country in the Western world). Produced by the Monsanto Corporation, Agent Orange was used as a defoliant by the US forces, and it was in the interest of that company that Doll acted.

2,4,5-T is generally contaminated with an impurity known as dioxin, one of the most toxic substances known. The smallest amounts of this substance can produce a total degeneration of the liver, and it has been found to be 70,000 times more deadly than cyanide. This did not prevent the American forces from using 2,4,5,-T to defoliate Vietnam - to strip away the tree cover, so important for their Vietcong opponents. Great swatches of jungle were destroyed and as much as one tenth of South Vietnam's rural countryside was devastated. Monsanto did very well out of it, as production of 2,4,5-T rocketed from 5.8 million pounds in 1958 to 13 million pounds in 1964, and to 42 million pounds in 1968.[24]

In 1964, the National Cancer Institute commissioned a report to test the carcinogenicity of 2,4,5-T and it was found to cause birth defects, cleft palate and malformation of the kidneys in the animals tested. The report was kept secret.

In the meantime a large number of Australian veterans, whose health had been seriously affected while serving in Vietnam, campaigned for an inquiry into its effects.

A Royal Commission was eventually set up. Its focus was on soft-tissue sarcoma, the incidence of which had been linked in Sweden with the use of 2,4,5-T by two Swedish researchers, Olaf Axelson and Lennart Hardell, at the University of Umea.[25] The Commission went out of its way to discredit the evidence provided by these researchers and ended up by giving 2,4,5-T a clean bill of health. Axelson and Hardell, however, refused to give in. Supported by other scientists, they accused the Royal Commission report of being "a most questionable document" and of being "full of misquotations, distortions of information, and even falsification of facts". In a later paper they accused the Royal Commission of "lying in order to be able to disregard

apparently inconvenient results".[26] Going even further, they showed that almost all the conclusions of the report had been taken word for word from the evidence of Monsanto's Australia Ltd.

Sir Richard Doll wrote a personal letter to the judge who headed the Royal Commission, in which he gave the Commission's report his seal of approval, validated the defence evidence of Monsanto, and defended Agent Orange, while also attempting to destroy Hardell's scientific reputation.

"Hardell's conclusions", Doll wrote, "cannot be sustained and in my opinion, his work should no longer be cited as scientific evidence. It is clear, too, from your review of the published evidence relating to 2,4-D and 2,4,5-T (the phenoxy herbicides in question) that there is no reason to suppose that they are carcinogenic in laboratory animals and that even TCDD (Dioxin), which has been postulated to be a dangerous contaminant of the herbicides, is at the most, only weakly and inconsistently carcinogenic in animal experiments."[27]

This letter, the contents of which are irreconcilable with all the serious evidence on the subject, coming as it did from one of the most prestigious scientists in the field, had an electrifying effect. It could not have done more for Monsanto had he taken out a full-page advertisement in the world's biggest circulation newspapers.

Low-level Radiation

Establishment scientists, politicians, medical researchers, and doctors, have almost always argued that exposure to low levels of radiation has a negligible effect on human health. If the opposite could be proved to be true, the consequences for the nuclear weapons and the nuclear power industries would be intolerable. William H Taft, US State Department attorney, in 1981 stated himself that "The mistaken impression (that low-level radiation is hazardous) has the potential to be seriously damaging to every aspect of the Department of Defence's nuclear weapons and nuclear propulsion programmes. ... It could adversely affect our relationship with our nuclear allies."[28]

Of course this view has not been endorsed by serious and objective scientists. Professor Linus Pauling, the double Nobel Laureate in the US, and Professor Andrei Sakharov in the USSR, calculated in the 1950s that millions of people would die prematurely from the ingestion of fission products resulting from fall-out from atmospheric bomb tests,[29] and many others have said likewise.

Inevitably, Sir Richard Doll has been heavily involved in this field. In the 1950s, he was asked by the Government to look at the possible carcinogenic effects of strontium-90, a radionuclide generated by nuclear installations that mimics calcium and is taken up in the bones of growing children.

Doll was also engaged by the Medical Research Council (MRC) at that time to review all the research conducted on the Hiroshima survivors. In his report on this issue Doll accepted that those who had been directly exposed to the bomb when it exploded would have a higher risk of leukaemia and other cancers; not so, however, those who had been exposed only indirectly to the bomb. For them there was little risk of cancer or other health damage, and hence no evidence that low-level radiation in the form of fall-out could do any damage.

In 1957 Doll had been engaged by the Government to assess the quantitative relationships between exposure to radiation and the development of cancer. He had carried out two epidemiological studies, the results of which suggested that there could be a quantitative relationship between radiation and leukaemia. At that time he still had an open mind on the subject.[30] However, by 1992 his tune had totally changed and he stated quite explicitly that "the effects of low-level radiation are so small as to be virtually zero." This has been the view he has expressed ever since, in spite of the mounting evidence to the contrary.

In 1987 Doll presented the findings of a study on 'Cancer near nuclear installations' in Nature,[31] which looked at the cancer rate in the vicinity of all Britain's 15 nuclear power stations (made up of 36 nuclear reactors). Predictably it concluded that there was "no increase in childhood leukaemia near any nuclear power station." However, very shortly afterwards reports clearly demonstrating the existence of leukaemia clusters around nuclear installations began to appear. In August 1987, for instance, a government advisory group tried to establish the causes of the alleged increases in child leukaemia at Aldermaston, where atom bombs are produced, Harwell, the nuclear research centre south of Oxford, and Burghfield. The fact that leukaemia clusters existed in these areas was no longer denied, but the government advisory group still reported, very predictably, that they could not possibly be attributed to the activities of these three nuclear installations.

Even more embarrassing to Sir Richard Doll was the report, published in the British Medical Journal in October 1987.[32] The report contained the results of two studies of childhood leukaemia in Seascale, the village which borders on the Sellafield nuclear reprocessing plant. The first study looked at one group of 1,068 children born near Sellafield between 1950 and 1984, and another a group of 1,546 children born outside the area but attending local schools. The leukaemia and cancer cases occurred only in those children born in Seascale. This fitted in well with the findings of a report by Sir Douglas Black, former chief scientific adviser to the Department of Health, in 1985.[33] Both studies were conducted by Dr. Marlin Gardner, Professor of medical statistics at Southampton General Hospital, and Dr. John Terrell, District Medical Officer of Health at West Cumberland Hospital, Whitehaven.

Gardner and Terrell concluded that the children with leukaemia and other cancers were those whose parents had worked at the Sellafield processing plant. These results endorsed the campaigning views of CORE (Cumbrians Opposed to a Radioactive Environment), the key environmental group in that area, who believed that "the damage is from radioactive particles first inhaled by prospective mothers from the atmosphere. In pregnancy the radioactivity is transferred to the foetus where it collects in concentrations up to a thousand times the level in the mother." Needless to say BNFL could not accept these findings. Their spokesman, Jake Kelley insisted that the retreatment plant was not to blame, and that "leukaemia in children can be caused by many things." It was predictably Sir Richard Doll who was engaged to give scientific weight to this denial.

In March 1989 Doll was engaged by the MRC and the ICRF to conduct yet another research programme to assess cancer risks (lymphoid leukaemia) in under 25 year olds in the population living within ten miles of a nuclear installation. The results of the study were again embarrassing? The death rates were found to be 21 per cent higher than the national average, yet this still did not persuade Sir Richard that there

was a connection between radiation and leukaemia. In an interview with the Daily Mail he admitted that "until we find some other cause, we cannot say that it (radioactivity) is not responsible." Clearly though, he was very keen to find another cause, and hit on the idea of a leukaemia virus, which could easily have been introduced by newly arrived workers coming to work at the Sellafied installations. The novel theory was also advanced that the over-clean homes of nuclear workers rendered their children more susceptible to leukaemia viruses.[35] Shamefully, this speculative viral infection, for which there is not a shred of evidence, remains the official explanation spouted by the nuclear industry and the Government alike.

That same year the conference organized by the United Kingdom Atomic Energy Authority (UKAEA) advised the Government not to reduce the maximum annual dose for radiation workers, as had been proposed the year before by the National Radiation Protection Board (NRPB) and also by the United Nations Scientific Committee on the effects of low-level radiation, in the face of mounting evidence of the carcinogenicity of even extremely low levels of radioactivity. Clearly industry interests had to come first. Indeed, the new safety levels proposed from (50 to 15 millisievers a year) would have led the nuclear industry to incur extra costs which it would have had difficulty in meeting.[36]

In March 1992, the UK Co-ordinating Committee on Cancer Research, which consists of the major cancer charities, announced a [pounds]6 million study to test the various hypotheses that have been put forward to explain childhood cancer around nuclear installations. Doll, predictably, expressed his firm belief in the vital hypothesis. A colleague of Doll's, Professor Mel Greaves, tried to rationalize an embarrassingly unconvincing thesis on the grounds that homes had become much cleaner and that the risk of leukaemia increases with rising living standards. In this way cleaner homes, which made us vulnerable to persistent viruses, rather than the much more chemicalized environment of our more affluent society were conveniently incriminated.[37]

The Bomb Test Service Men

In the same way that Doll offered evidence against the Australian Vietnam war veterans, whose health had been devastated by exposure to Agent Orange, so was he engaged to demolish the case brought by Mr Ken McGinley, Chairman of a group of 1,500 members of the Nuclear Test Veterans Association, who in the 1950s were used as guinea pigs in test trials and whose health was seriously affected by radiation.

The case was first investigated by the Ministry of Defence. The study was then funded by the NRPB and the ICRF, who, in spite of the fact that not one of the servicemen had been examined clinically, decided that there was no evidence to prove that any of them had suffered from higher than normal radiation exposure. The testimony given by Doll and Darby, based on a statistical study that revealed a high incidence of deaths from leukaemia and multiple myeloma (attributed, Doll said, to a "statistical quirk") among those servicemen who had been exposed to radiation, confirmed the conclusion of the study.[38]

A further study in 1993 on this same issue, by Doll and Darby, further confirmed their previous position, with minor reservations.

Significantly, though Doll has always refused to accept the connection between man-made radioactivity and cancer, he has always seen, for reasons best known to himself, natural background radiation as a major cause of leukaemia and other cancers.

Quite early on the NRPB had estimated that at least 2,500 people who lived in areas where there is a lot of granite, as in Cornwall, and were exposed to high levels of radon gas in their homes died of lung cancer every year in Britain. In 1990 however, Doll and Darby published a report for the ICRF in Nature which suggested that the figure may be as high as 5,000 cases a year.[39] Why, we might ask, if man-made radioactivity is so totally harmless, is natural radioactivity on the contrary so incredibly dangerous?

Doll's estimates of natural low-level radiation from Radon were based on an assessment of the levels of lung cancer among uranium miners exposed to high levels of radon gas. They came only months after Doll and Darby had yet again denied cancers at sites of nuclear installations. They showed that a decreasing exposure to radiation, instead of leading to a lower risk of cancer, actually increased the risk of cancer - in other words, that very low levels of exposure to this natural radioactivity were particularly harmful. Given these conclusions, why have Doll and his colleagues always insisted that only very high levels of man-made radioactivity were harmful?

It is easy to demonstrate that in every field in which Doll has been involved he has systematically defended the interests of industry and the State, even when these are in total conflict with those of people in general, and are irreconcilable with all the established knowledge on the subject.

Asbestos and Cancer

In 1955 Doll had carried out a study of mortality in asbestos workers. His report[40] was considered a landmark publication showing that workers in the asbestos industry had a high risk of cancer.

By 1983 he was singing a different tune. His career as a defender of corporate interests was now well under way. A new report done by him and his assistant Julian Peto came to a totally different conclusion.[41]

The Society for the Prevention of Asbestosis and Industrial Diseases (SPAID) criticized the methodology used by Sir Richard in a letter to the Sunday Times on the 26th April 1985: "Sir Richard Doll", SPAID insisted, has "used so many estimates, adjustments, approximations and hypothetical figures in order to assure us that only one person in 100,000 working in an office containing undamaged asbestos risks death, that SPAID is not reassured."[42]

Nor, for that matter, one must assume, were the 30,000 people in the USA whose health had been devastated by exposure to asbestos and who were seeking compensation from their insurance companies - not to mention the 500 new ones who were deciding to do likewise every month.

Anaesthetics

There is some evidence that substances used as anaesthetics have a damaging effect on health.[43] The results of a study carried out on the subject was published in the April 1979 issue of the British Medical Journal.[44] It was based on a survey of the health of 10 per cent of all the anaesthetists in England and Wales - and it suggested that working with anaesthetics had a generally adverse affect on their health status. In particular it noted that there were excess spontaneous abortions in the families of anaesthetists, a lower fertility rate, a greater incidence of cancer, and a greater likelihood that children of anaesthetists would be born with congenital defects. The Medical Research Council predictably qualified the paper as "a one-sided review",[45] and Sir Richard Doll, one of its leading lights, did not waste any time in stating his complete rejection of the study's findings.

Fluoridation of Drinking Water

Sir Richard Doll's role in the debate on the fluoridation of water supplies was equally predictable. It has been known for a long time that fluoride is a poison. In October 1944 the Journal of the American Medical Association published an editorial stating "that the use of drinking water containing as little as 1.2 to 3 parts per million of fluoride will cause such developmental disturbances in bones as osteosclerosis, spondylosis, and osteopetrosis, as well as goitre."[46]

In 1990 the American National Toxicology Program announced that it had established a clear link between fluoride and a type of bone cancer called osteosarcoma. It also indicated that fluoride might be responsible for a particular type of cancer of the mouth. However, it was in the interest of many powerful bodies that fluoride be added to our drinking supplies. This included the sugar industry and the aluminium industry, which was desperate to get rid of the vast amount of fluoride waste that its activities had generated.

Industrial interests were sufficient to influence the Royal College of Physicians' 18-member committee, which included Doll, to recommend the addition of fluoride to drinking water in January 1976.[47] The widespread criticism was raised that to impose this medication on the population at large without its prior informed consent, would be a breach of medical ethics.

Sir Richard Doll fully backed the report's conclusions, going even further than they did in declaring that, if anything, it was "unethical not to add fluoride to drinking water."[48]

Lead in Petrol

The role played by Sir Richard Doll in the long controversy over the effects of exposure to lead in petrol on the health of children was equally predictable. Lead was originally added to petrol in the form of the organic lead compounds: tetramethyl and tetraethyl, both of which are absorbed through the skin and are extremely neurotoxic.[49] In the 1960s and 1970s, it became increasingly clear that children absorbed this lead into their blood through their lungs and by eating contaminated fruit and vegetables. Clear

evidence of health damage from organic lead in petrol began to appear in the late 1970s. However, in Britain and America, the petrochemical companies ran a continuous campaign in favour of maintaining lead in petrol and generally denying its deleterious health effects

In May 1980 the Department of Health and Social Security (DHSS) published the report of a study carried out by the MRC entitled Lead and Health, written by the Lawther Working Party set up by the Department of the Environment (DOE).[50] The Working Party concluded that there was no evidence for clinical lead poisoning, which fitted in perfectly with the propaganda of the petrochemical companies. It even went further, claiming that the removal of lead from petrol would lead to increased cancer-causing hydrocarbon emissions.

A study carried out by two members of the Lawther Working Party, Dr Yule and Dr Lansdown,[51] drew conclusions that totally contradicted those of the Lawther Working Party. They found that, in almost every case, among a group of schoolchildren whom they examined, body-lead levels correlated with IQ and school performance, more strongly than did the social class of the children. The British Medical Journal (BMJ) declined to publish this paper.

In 1983 Professor Derek Bryce-Smith and Dr Robert Stephens refuted the DHSS report, accusing the MRC team of being hypercritical of all the studies which showed evidence of a relationship between levels of lead in petrol and mental function.[52] They also showed that the blood lead safety levels set by the DHSS report were without "real scientific or medical basis".[53]

However, in 1983 Sir Richard Doll was still arguing the case of the petrochemical companies. He insisted that there was not enough lead in the air to damage children's brains. Any adverse health effects caused by lead, he also insisted, were due to drinking water that had passed through lead piping. Lead in petrol could not be incriminated.[54]

From a Friend of the People to a Friend of the Powerful

What lessons can be drawn from the career of Sir Richard Doll? How can we explain, in particular, his and other research scientists' failure to appraise seriously the subject of cancer and the environment?

Today nearly all the major institutions of scientific research which study the effect of chemicals and other toxins on health are financed, managed, supported or aided, by chemical and pharmaceutical companies. As a result it is increasingly difficult to find independent scientists within the area of environmental health. Those academics who fight the corner for sufferers of chemically induced illnesses are an eclectic grouping of medical clinicians, social scientists, philanthropists and community activists. They have, however, one thing in common: they lack funding. and have on the whole been prised away from real power.

The first British Labour government which came to power in 1945, was open to the idea that science and government could work for the people. In 1947, the Medical Research Council, which had been created before the war, set up a toxicology research

unit.[55] Its aim was to monitor the growing use of chemicals, including insecticides, fungicides, and organic solvents, and their effects on human health.

In the early fifties, the MRC Toxicology Unit did indeed research pesticides, and especially the effect of organophosphate insecticides on human health. By the mid-fifties, however, the unit was moving slowly away from its original brief, pushing chemicals to one side and liberally extending the research to cover more esoteric subjects. Significantly, in 1956, one of the Unit's nine research subjects was the "toxic properties of certain plants used as herbal remedies in primitive societies."[56] The accent was already on natural rather than man-made poisons.

Over the next thirty years, the MRC, while preserving its Toxicology Unit, gradually dropped its research into toxic chemicals. During the 1970s and 1980s, as the drag companies increasingly offered funding, support and partnership projects, the focus of research turned towards cell-biology, pharmaceuticals and genetics. The emphasis was on the good rather than the harm that chemicals and industrial scientific processes could do. In the mid-nineteen eighties the Wellcome Foundation used the MRC as a vehicle for providing the scientific justification for the production of the first AIDS drag, AZT.[57] This was possible because by then the Council of the MRC was already dominated by individuals with vested interests in the chemical and pharmaceutical industry.[58] The very companies whose products should have been critically investigated by the MRC were, in one form or another, represented on the Council of Britain's most prestigious medical research body. It is no coincidence that Sir Richard Doll has held office in that august institution for most of his professional career. Nor is it a coincidence that its present Chairman, Sir David Plastow, instead of being someone with a lifetime professional preoccupation with the health of the British people, is a man whose interests have been with the motor industry, whose polluting activities are a major source of lung disease, including lung cancer.

What is true of the MRC is also true of the main cancer charities. Decades ago they Were relatively independent from industry, arguing the case for 'the people'. Now they are all but departments of large pharmaceutical companies. The Imperial Cancer Research Fund, for which Doll worked for a large part of his career, is a case in point. While most lay people imagine that it is simply a worthy charity collecting money to research cancer, few will understand that it is itself a multi-million pound corporation which hardly makes a move independently of professional science, or its industrial pharmaceutical patrons and backers.

Through its council and its benefactors, the ICRF is run by, and mainly for, the profit of the pharmaceutical companies, the very corporations whose products would have to be investigated in any wide-ranging investigation of cancer and the environment. The sort of cancer research that is supported by the ICRF and other cancer charities is that which seeks to find 'cures' for specific forms of the disease.

The dissident position is of course that most of the money should go into searching for the environmental causes of cancer and then into wide-ranging preventive campaigns to eliminate the environmental factors involved. This emphasis, however, would bring cancer-research into head-on conflict with its industrial backers.

In the introduction to his book Wings of Death, Dr Chris Busby notes how: "... the control of research and publication in the area of radiation-dose and effect, has been assumed by the nuclear and military establishment, a powerful international lobby

which grew out of the need for secrecy relating to defence uses of nuclear fission, and the realization of the opportunities that there were for making immense amounts of money in this area."[59]

Thus, much of the research undertaken by the UK Co-ordinating Committee on Cancer Research (CCR) on leukaemia and radiation, from the early 1990s onwards, has been funded by British Nuclear Fuels, the very company that operates the Sellafield nuclear retreatment plant right next to Seascale, where the biggest child leukaemia cluster in the UK has been found. BNFL and other nuclear industry groups gave the UK CCR between [pounds]3 million and [pounds]6 million. The research undertaken was headed by none other than Sir Richard Doll.[60]

From 1979 to the end of his career, Sir Richard also received a very substantial yearly reward for research into cancer from General Motors.[61] This is of course hardly surprising given the wide range of problems which are increasingly associated with motor vehicle exhaust emissions, from global warming to cancer and various respiratory diseases.

Sir Richard has never hidden the source of this funding and has not even bothered to defend it. He does not feel there is any need to. In 1993, Doll wrote to Cumbrians Opposed to a Radioactive Environment (CORE), that had brought up the matter of the UK CCR BNFL grant: "To imply that the UK CCR was in some way under the influence of the nuclear industry ... this is certainly untrue."[62]

The answer to that, of course, is that industry is not in the habit of funding research for the publication of studies which demonstrate the carcinogenicity of their products. On the contrary, all the evidence shows that it goes out of its way to suppress any such information which may occasionally surface.[63, 64]

In 1996, researchers from the Centre for Public Integrity (CPI), an American non-profit investigative research organization. set out to discover "how chemical companies manufacture controversial products, year in and year out, in the face of government regulatory efforts, and civil litigation by citizens who feel victimized, and investigative news stories."[65] They found that time and again Congress and regulatory agencies put the interests of the chemical industry before those of the public; that scientific studies financed by the chemical industry tended to find that suspected carcinogens, such as atrazine, formaldehyde and perchloroethylene, were "innocent", while scientific studies by non-industry sources tended to find them dangerous to human health.[66]

The CPI also uncovered an extensive PR machine operated by the chemical industry, often with the complicity of the regulatory agencies, as well as a million-dollar service industry organized by chemical companies and associated organizations, to provide courtesy trips for regulatory officials.[67]

"Today, in Europe and America wherever chemicals are likely to become the subject of criticism, the companies move in, balancing, propagandizing, controlling, mediating protests, funding pseudo-scientific research, buying people off and funding social ventures to enhance their reputation."[68]

The dissident who questions the chemical companies, the industrial food companies, and inevitably the State, is branded as irrational, anti-science and anti-technology, and hence as a subversive standing in the way of progress.

In his 1983 Harveian Oration, Sir Richard Doll warned against environmentalists, who might "whip up irrational prejudice, unfounded in science".[69]

Again, in 1992, writing in the Daily Mail at the time of the Rio Summit, Doll warned that we may be seeing "a new attitude emerge; an irrational ideology opposed to science, to industry and to progress."[70] That attitude, he told us, exists already.

"There is, for example, a large and powerful lobby against pesticides, which they say leave cancer-causing residues in our food. Yet scientific research has shown that those residues are some 1,800 times less than the amount of cancer-causing agents naturally present in the plants. The lobby does not seem to object to natural carcinogens; only to the infinitesimally small amounts introduced by man.[71]

If this is the level of intellectual reasoning of Britain's greatest epidemiological scientist, then we should all pray for British science. Which edible plants have carcinogens in them 1,800 times more powerful than which pesticides? This, of course, he doesn't tell us. Nor could he, because these and similar statements routinely made by Doll and his sponsors, are pure fabrications.

The unbridled alliance of science and industry is transparent in Doll's Daily Mail article.[72] He defended industry on six different occasions in the short article and asked us, not without a dash of desperation, to trust industry and industrialists, science and scientists. These, he said, are the people with the key to the future. He ended the article with a warning that we must stop environmentalists whom he describes as the "anti-science Mafia", from "hijacking" the Rio summit.[73]

Sir Richard Doll believes strongly that whatever criticisms might be "laid at the door of industry and science", only "industry and science" can solve the problems of the modern world.[74]

He tells us too, against all the evidence, that the continual, unregulated and untested introduction of chemicals into our food, can do the land, the farmers, and ultimately the consumers, nothing but good.

Fortunately Sir Richard and his colleagues are fighting a losing battle. It is becoming increasingly clear to the people that all this is not only false but the very opposite to the truth - mere propaganda for the chemical and nuclear industries that are, like the tobacco industry also, responsible for the present cancer pandemic. How many people today really believe that the leukaemia clusters found around just about all nuclear installations in the UK and elsewhere are caused by viruses introduced by outsiders? Who will believe that the main environmental carcinogens are natural ones like blue cheese, mushrooms and radon gas? How many people really believe that asbestos, lead in petrol, and organophosphate pesticides are harmless? Fewer and fewer, as the serious, independent evidence inexorably accumulates.

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APPENDIX TWO

The Role of Industry in mediating Information About Occupational and Public Health: Towards a general theory.
An essay review of Magic Mineral to Killer Dust, Turner and Newall and the Asbestos Hazard. Geoffrey Tweedale.

The Role of Industry in Mediating Information About the Role of Industry in Mediating Information About Occupation and Public Health: Towards a general theory

The problems of post industrial production are different from those resolved during the last two centuries. Conflicts between producers, traders and consumers and citizens, seem more likely to shape future democracy than ideology.

In the developing world, the questions of what is produced, how it is produced, marketed and consumed, is becoming more important than working conditions. While trade unions and labour law developed to protect workers conditions, there are few mechanisms to protect consumers or citizens from producers.

The first new problems relating to production, consumers and public health, have already beset our society, including conflicts over pure water, tobacco, child vaccination, low level radiation and meat. An important aspect of post industrial democracy is the public discourse around consumer informed choice and the ethics of producers.

The production and consumption of asbestos straddles the industrial and early post industrial age. The quandary which came to absorb asbestos producers was how to continue creating wealth from a product which might kill thousands of citizens. This problem has becoming for producers one of quantifying acceptable risk, while for workers and consumers it is a matter of quality of life and death.

Geoffrey Tweedale's Book *Magic Mineral To Killer Dust: Turner & Newall and the asbestos hazard* (1) is an exquisite consideration of occupational and public health, written into a growing movement critical of the ethics and values of corporations. Central to the book is a historical account of Turner and Newall, its growth, organisation and entrenched defence of asbestos. This narrative begets an investigation into the fifty year critical lacuna, around the gathering mortality of workers and the camouflage cast over their deaths, by the company's directors and compliant professionals.

The book draws almost exclusively on documents gained from Turner and Newall in discovery by Chase Manhattan Bank, who sued the company for the cost of asbestos removal. In the preface and throughout the book, Tweedale questions the complicity of medical scientists, academic professionals and others. Why, he asks, `are corporations invariably seen as eminently respectable organizations ... the abuse of power, media manipulation, cut-throat rivalry, short term expediency, and corporate misconduct rarely depicted'.

* * *

In 1879, Turner Brothers, manufacturers of cotton packing materials, began using asbestos. The company in various forms, including Turner and Newall, eventually became a major producer of asbestos textiles.

Between 1950 and 1990, which years included for Turner and Newall the profitable 1960's, recorded deaths amongst workers rose from just over 100 a year to well over 1,000. Today, despite the cessation of much asbestos production, deaths amongst workers, users and consumers, from asbestos-related diseases in the year 2020, are estimated at between five and ten thousand.

In 1932, concerned about deaths amongst workers, the Home Office called a meeting with manufacturers. Turner and Newall immediately held a meeting to `arrange an organised line of resistance' to any proposed regulations. Attempting later to remove asbestos production for the schedule of dangerous occupations, Turner and Newall presented a list of complaints to the Home Office. New regulations finally introduced in 1933, stayed unchanged until the nineteen eighties.

The first post-war signs that Turner and Newall would play dirty came in 1954, when the young medical researcher Richard Doll tendered the results of a comparative study between cancer in asbestos workers and the general public between 1935 and 1953.(2) Doll had been invited to do the study by Turner and Newall's Medical Advisor Dr. John Knox.

Doll and Knox concluded that of 105 asbestos textile workers employed in areas covered by the 1933 regulations examined at autopsy, 18 had lung cancer; fifteen of these also had asbestosis. The average period between starting work with asbestos and dying was 28.4 years. Follow up studies of 113 men with at least twenty years exposure showed that 39 deaths had occurred, twice that expected in the general public.

Doll concluded in the paper that the 1933 regulations had led to `progressively less risk' of cancer amongst Turner and Newall workers. He added a proviso that there was `insufficient data are available to determine whether it (the risk) has been completely eliminated.(3)

On reading the paper, Turner and Newall directors, refused to permit its publication. Doll was `shocked'. Despite legal bullying from the company, he published the paper in 1955. When the company's directors considered the publication, they decided that they could live with science, that a `falling risk' could be spun and emphasised `several encouraging features of the analysis'.

I n 1957 Turner and Newall joined forces with Cape and British Belting & Asbestos to found the Asbestosis Research Council (ARC). (4)The ARC developed links with the Medical Research Council and other national and international institutions. Through ARC the asbestos industry controlled nearly all research into asbestos and its associated illnesses over the next two decades.

In 1967, the same companies founded the Asbestos Information Committee (AIC). The Committee produced films, books, newspaper supplements and advertisements extolling the values of asbestos. (5)

Although there were a number of researchers investigating health and asbestos from 1960 to 1980, Richard Doll was responsible for the most authoritative work in this area. After settling his differences with Turner and Newall, Doll continued researching the health of their workers. The results of his work, however, became increasingly less controversial to Turner and Newall and more `acceptable to the asbestos industry'.(6)

By the mid-sixties, Richard Doll was intimating that lung cancer in asbestos workers might `have been completely elliminated'. Such ruminations `appeared inconsistent with government data, that showed ... an alarming rise of lung cancer amongst asbestos workers'.

In Killer Dust Tweedale suggests two reasons for the disparity between Doll's conclusions and official statistics.(7) Firstly, Doll relied upon data which had been prepared by Turner and Newall. Secondly, Tweedale refers generously to Doll's methodology. Doll extrapolated figures for asbestos diseases generally, from a base of `scheduled area' asbestos workers. However, by the 1960's, dust control in the company's Rochdale plant represented `best practice'. No one was looking at `worst practice', in the same company or allied companies. (8)

In his book Asbestos, Barry Castleman, goes further than Tweedale in criticising the validity of Doll's first research findings.(9) And in a recent paper, he suggests that Doll compromised with Turner and Newell, in order to retain access to future research data. In the 1970's,(10) Doll began working with the statistician Julian Peto. Peto concluded that the safety(c)gold(c)standard of 2(c)fibre/cc, which the industry and Doll supported, was `wildly wrong'. (11) In 1977 he tried to undermine it, announcing that 10% of asbestos workers exposed to 2f/cc for fifty years would die from asbestos disease. When Turner Brothers Asbestos turned to Sir Richard, he spoke publicly in defence of contemporary safety standards.(12)

In 1982 Yorkshire TV, screened `Alice - A Fight for Life' a two hour documentary about the Asbestos industry. (13)The programme had a devastating effect on Turner and Newall and again they turned to Sir Richard Doll. Accompanied by his wife, Dr. Joan Faulkner (who had herself, as a worker at the MRC, arranged meetings on asbestosis with ARC funded researchers) Doll visited Turner and Newall to give, managers and trade unionists, a scientific overview of the asbestos hazard at TBA. The world's foremost cancer epidemiologist began by suggesting that the programme was `far and away more harmful than anything it could be claimed to counter'. (14)

Doll went on to tell his audience that `for long-serving workers in the scheduled areas of Turner and Newall, the chance of developing an asbestos-related

disease was a `pretty outside chance'. (15) According to Castleman, by around this time, Doll was acting as a `litigation consultant' for the company. (16)

Returning home from the talk, Lady Doll wrote, soothing the existential post programme pain of TBA's chief executive, Brian Heron: `We not only live in wretched times, but they are so often made 100% worse by the Media!'. (17)

* * *

The story of Turner and Newall's careless production of a deadly carcinogen, is not peculiar. It is similar to the story of the tobacco companies and the secrets which they kept from consumers. Little different from the story of censorship and distortion surrounding health information on low-level radiation, power lines and vehicle exhaust emissions.

There is a common formula to these and other accounts: one or two companies create a monopoly share of a highly marketable product (c) sugar is a good example. In time, extended industries and cohorts of less powerful businesses come to depend on the product. When it emerges that the product might be inimical to human health, the company determines to keep secret as much as it can, while broadcasting obverse or anodyne information about their product - thalidomide is a good example.(18)

The company extends itself into propaganda, getting involved with establishments, especially regulatory and legislatory, setting up front organisations of different kinds, commissioning, subsidising and even carrying out scientific work - the pharmaceutical companies spring to mind. The company, or now industry front organisations, employ public relations companies which gather to themselves scientists, researchers and journalists who knowingly or naively broadcast their message. As the body count of workers, users or consumers mounts, the company digs in.(19), (20)

Given this model of industry at war with the community, besides `why have academics failed to investigate industry malpractice', we have also to ask, `why have those who have written about this not attempted a general theory of the phenomena?'

One of the reasons academics and other professionals have steered clear of detailed investigations of corporations, or resolving general theories, is relatively obvious; capitalism constantly legitimises both corrupt practices and unhealthy relationships between workers and managers. It is not in the interests of capitalism to encourage either critique or investigation.

We should not ignore the fact that the case of Turner and Newall is a `wind-fall' case, the evidence and investigatory muscle having been given academics by Chase Manhattan, some time after the company's `collapse'. Others who have embarked upon first hand investigations have not always been as

fortunate as Tweedale. (21)The American criminologist Henry Sutherland, who in the 1960's drafted one of the only general theories of business crime, was dead before an uncensored version of his book was published in 1983. (22) In his life time he faced pressures from publishers and grant seeking University directors not to publish.

In the last paragraph of his preface, Tweedale writes: `This book is therefore not simply a muckraking tale of corporate misconduct'. The Muckrakers were a non -hegemonous group of American writers who campaigned against corruption in City Hall and the boardrooms of the Trusts in early twentieth century America.(23)

Amongst their greatest exposes were Ida Tarbell's The History of Standard Oil (24) and Upton Sinclair's fictionalised horrors of the Chicago meat packing plants, The Jungle (25) The muckrakers were on the whole more likely to be campaigners than todays academics. Upton Sinclair was an active socialist when in 1909 he finished his the manuscript for The Jungle. .(26)

He eventually got the manuscript accepted by Doubleday, where the editor was `a kind and extremely naive man' who: `... submitted the proofs of The Jungle to the managing editor of the Chicago Tribune, who sent back a thirty - two page report on the book, prepared by `a disinterested and competent reporter'.(27)

When Sinclair exposed the report as meat packers propaganda, Doubleday sent a young lawyer to investigate. He met a publicity agent of the packers who said that he knew of The Jungle: `I read the proofs of it and prepared a thirty-two page report'. Upton Sinclair paid a high price for his campaign when, amongst other attacks, his socialist commune home was burnt down. (28)

Rachael Carson, defended human and animal health against the agrochemical companies in Silent Spring, and became the subject of a relentless campaign.(29) The chemical companies used a whole new lexicon of tricks to defend DDT.

The US producers of DDT, Velsicol, tried to stop publication of Silent Spring. In a letter to the book's publishers, they entreated:

In addition to the sincere opinions by natural food faddists, Audubon groups and others, members of the chemical industry in this country and in western Europe must deal with sinister influences. (30)

The communists, they said, intended `to reduce the use of chemicals in this country ... so that the supply of food will be reduced to East-Curtain parity'. (31)

In defence of DDT, the American Medical Association sided with the Nutrition Foundation, then supported by fifty(c)four companies in the food,

chemical and allied industries.33 A Fact Kit sent out by the Foundation stressed the `independence' of those who attacked Carson, `... special interest groups are promoting her book as if it were ... written by a scientist.' (33)

Castleman and Tweedale both cite a further approach made by a Turner and Newall director to the editor of the British Journal of Industrial Medicine, Dr Keith Schilling. Schilling, who had agreed to publish Doll's paper was `amazed' by the approach.(34)

Whether or not the censorship of research by industry was prevalent in 1956, it is now one of the major defensive weapons of choice. In 1991 and 1992, the American Environmental Protection Agency (EPA) offered an amnesty on large-scale fines to any manufacturer turning in health studies previously kept from the Agency. More than 10,000 studies which showed that chemicals already on the market could pose a `substantial risk of injury to health or the environment' were turned in. (35)

In his ground-breaking book *Silencing Scientists and Scholars in Other Fields* Gordon Moran begins a crude epistemology of this censorship as it is found mainly amongst university academics. (36)

The few competent attacks that there have been on the production and marketing methods of large corporations, have provoked ferocious counter attacks. The legitimation of industry, especially in America, is now an industry itself, full of public relations personnel, lawyers, retained academics and journalists, scientists and security agencies willing to burgle houses, open mail, bug phones and assassinate characters. Those who write critically of industry have become the new subversives.

The case of Turner and Newall is classic. Take, for example, the setting up of the Asbestos Research Council (AIC). The AIC was no more than a desk in the offices of Hill and Knowleton, a PR company. In his comprehensive book, The Politics of Food, Geoffrey Cannon explains how `councils' and `research' bodies are set up by PR companies. (37)Such `councils' can refute negative research results while publicising a positive spin on the industries they work for.

Tweedale twice makes reference to Hill and Knowlton, on both occasions mentioning work for the tobacco industry. Even the most superficial look at Hill and Knowlton would have given him more contexturalising information. Hill and Knowlton push drugs for the pharmaceutical industry, principally Wellcome's highly contentious AZT. (38)

In America, on behalf of `Wise Use' corporations, they distributed a phoney Earth First! memo, which called for acts of violence, `to fuck up the mega machine'. (39) Some recent American books discuss the work of industrial front organisations and public relations companies, showing the lengths to which they will go to penetrate the media and attack critics. (40) (41)

PR companies now play a major role in retaining, for corporations, compliant scientists and academics. In 1991, chlorine manufacturers put Ketchum Public Relations to work obstructing the Greenpeace campaign for a global phase(c)out of chlorine. The Chlorine Institute rallied influential scientists to speak in favour of chlorine, in much the same way that the Asbestos Information Committee acted.(42)

At least two recent books look in depth at the industry backlash against green campaigns. (43) (44)They describe how apparently independent scientists and other professionals argue the case for multinational corporations. With the aid of PR companies, industry front groups run `spoiler' campaigns against critics. One of the most prominent contemporary industry front organisations is the American Council on Science and Health (ACSH).(45)

ACSH specialises in pro(c)industry `scientific' reports; Sir Richard Doll is now on their Board of Scientific and Policy Advisers. ACSH used spoiling tactics against David Steinman and his book, Diet for a Poisoned Planet, about the chemical contamination of food. Before publication, Elizabeth Whelan, head of ACSH, wrote to the White House Chief of Staff, suggesting Steinman was a subversive, `threatening the US standard of living and ... a future threat to national security'. (46)

ACSH's spoiler strategy involved their public relations company, contacting television and radio programmes in advance of Steinman's appearances to described him as an `off the wall extremist without credibility' (47)

Although it is true that many professionals have become part of the problem, most activists have not. Work which emanates from the periphery is rarely put together with academic skill, but the truth is nevertheless out there. The London Food Commission (48)has masses of information about food companies and their ways of endangering our health. Friends of the Earth, (49) the Ecologist, (50) Earth First!,(51) and The Ethical Consumer, (52) all produce critical accounts of companies.

With industry in this state of readiness and all this flak being run against critics, it is hardly surprising that the truth about health threatening products and occupations rarely reaches the public. The question of how we control those, including scientists, who mediate information about products and production, when they might be fostered, funded, philosophically or ideologically influenced by industrial corporations is a major question for post(c) industrial democracy. However, before we can have policy and we need a credible general theory of industrial dirty tricks.

With respect to policy, two matters are fairly obvious. It would be better for consumers and citizens if public and occupational health research was independently regulated and it was neither possible, nor acceptable, for researchers

to work with, be helped, sponsored or funded, even tangentially, by the organisations or companies they research. Secondly, it appears glaringly clear to me that if the train driver can be held responsible for the train wreck, scientists should be made legally responsible for their research results. If a scientist argues convincingly that an industrial process is not seriously damaging to human health and this turns out not to be true, then they should be made to face serious legal and academic consequences.

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APPENDIX THREE

Martin J Walker. Company Men and the Public Health, Part II: Death, Dioxin and PVC. 2003. Also available at: www.dipmat.unipg.it/~mamone/sci-dem/contri/walker.pdf.

Company Men and the Public Health:

Part Two, Sir Richard Doll: Death, Dioxin and PVC

Martin J Walker MA.

As a doctor and a man of science, naturally you see this affair of the polluted water-supply as a perfectly clear-cut isolated issue. I don't suppose it's occurred to you that a great many other things are involved.

An Enemy of the People. Henrik Ibsen

Introduction

Sir Richard Doll is considered to be one of the world's greatest public health epidemiologists. In Britain, his stature in the contemporary world rises far above those historical characters who, it is said, shaped the scientific approach to public health in the nineteenth and early twentieth century. An English gentleman, who exposed the link between cigarettes and cancer, with a long association with Oxford University, Sir Richard's ethics are accepted as beyond criticism and consequently the results of his research frequently epitomise the inevitable 'rightness' of science as a tool for testing public health risk.

Accolades and awards fall to Sir Richard, at the age of 86, seemingly as naturally and inevitably as fruit falls from trees. In July 2002, he and his long- time colleague, Sir Richard Peto, were awarded the King Olav V's prize of 1 million NOK, for outstanding cancer research. In September 2002 Sir Richard was given the honorary freedom of the City of Oxford. Also in Oxford, work began in January 2003 on a new multimillion pound Richard Doll epidemiology and trials centre.

Wheeled out as a totem of the scientific conscience on popular programmes like *Desert Island Discs,*[1] Sir Richard makes a good avuncular subject appearing to personify the altruistic and curiosity-driven scientist. Hardly ever is anything written, inside or outside the academic press, which is critical of Sir Richard's work.[2] This is not necessarily because people do not have criticisms, but more obviously because they do not have the power to make their criticisms public and, anyway, English critics are kept in constant thrall by the English disease of libel.[3]

In a recent interview with James Wilkinson for *intouch,* Sir Richard is introduced as being 'amongst the first to identify the dangers of smoking, asbestos, and low levels of radiation; the risk of birth control pills; and the role of diet in cancer and other diseases'.[4] If this summary description of his record as a public health epidemiologist were even superficially correct, why would anyone wish to be critical of Sir Richard's work?

Sir Richard Doll is principally known for his finding, in the 1960s, that lung cancer can be related to cigarette smoking.[5, 6]It is mainly on the basis of this work, that

[1] A radio programme through which anyone who is anyone in Britain has to pass. The subject is asked what ten records they would want with them if they were stranded on a desert island and which one book, apart from the Bible and Shakespeare.

[2] There are a number of exceptions to this rule, Geoffrey Tweedale broaches Doll's unreliable research on asbestos in Magic Mineral to Killer Dust and Barry Castelman asks important questions about the same subject in his standard work on asbestos. In a more recent book about the late epidemiologist Alice Stewart, a contemporary of Doll's, Gayle Green makes a critical comparison between the two physician scientists. Samuel Epstein, the most acute US critic of the cancer establishment, makes barbed comments about Doll, Peto and their US counterparts in his seminal work *The Politics of Cancer.*

[3] When I wrote a critical piece for the *Ecologist* about the work of Sir Richard, I was immediately visited by a solicitors letter which pointed out the errors of my way. Some years later I was the subject of a short article, in a well known public health journal, by Sir Richard, headed *A defamatory article by Martin J Walker.*The piece which I wrote for the Ecologist was later included by Professor Samuel Epstein in his *The Politics of Cancer*.

[4] As always, the devil is in the detail, in most these mentioned areas there are serious criticisms of Sir Richard's work and in relation to low level radiation the statement appears to be definitely incorrect. Sir Richard has always been of the opinion that man made low level radiation has no adverse effects on health.

[5] Although Sir Richard's survey of Doctors provided some of the first proof, the view that smoking tobacco and cancer were linked, had been expressed by doctors, researchers and writers since the nineteenth century for example, here are a couple of citations: Frederick Hoffman, *Third and Fourth Quarterly Report of the San Francisco Cancer Survey* (Prudential Press, 1925) and the 1928 summary thereof by Drs. Herbert L. Lombard and Carl B. Doering, in 'Cancer Studies: Habits, Characteristics and Environment of Individuals with and without Cancer,' *New England Journal of Medicine* 198 (10): 481-487 (April 26, 1928). The tobacco-cancer link was already sufficiently known in America to be the subject of commentary by a lay author in 1885, under the pseudonym of Meta Lander. She wrote *The Tobacco Problem*, 6th ed. (Boston: Lee and Shepard Pub. 1885), discussing tobacco and cancer. (Leroy J. Pletten, Ph.D. The Crime Prevention Group. Priorities ASCH Magazine, Volume 12, 1 2000)

Sir Richard's reputation as a scientist defending the public interest advanced. However, Sir Richard is not 'a man of the people'; he has rarely, if ever, taken up any public issues or challenged vested interests and has never been involved in any campaigns where communities considered that their health was under threat from powerful parties.[7] In fact the opposite is the case, for the greater part of his working life, Sir Richard has worked almost entirely for industrial corporations, in defence of their products and processes. Some of his cancer research work was funded by corporations at whom other scientists have pointed the finger as polluters, and much of his work for the British cancer charities has involved organising drug trials, paid for by pharmaceutical companies.[8]

Without actually carrying out extensive studies, Sir Richard has dismissed a number of contentious pollutants, such as pesticides and exhaust particulates, as co-factors in the cause of cancer and he has stated his case quite forcefully in favour of industry and against environmentalists.[9] He has never made any secret of the fact that he has been funded by industry for specific research projects. His position on industry

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[6] In The Woman Who knew Too Much, Alice Stewart tells the author how Doll came to work on the smoking study in 1947: "Stewart does feel that Doll was exceptionally lucky to be in the right place at the right time … 'Dr Percy Stocks had been studying the rising rate of lung cancer and had called a meeting at the Medical Research Council; he had a hunch that the cause was smoking. We went round the table at the meeting and all these experts gave their reasons why they didn't think that smoking was the problem. Nobody wanted to do this survey, and everyone was saying that it wasn't necessary … It came to Bradford Hill as a sort of last resort, who said, 'Right, well it looks like we've got to do something. I've got a young man in my office', and he gave the study to Doll".

[7] An interesting comparison is drawn between Sir Richard Doll and the late Professor Alice Stewart, by Gayle Greene in her book The Woman Who Knew Too Much (University of Michigan Press 1999). Alice Stewart undoubtedly one of the most important epidemiologists of her generation, was at Oxford during the same period as Doll. She supported the campaigns of families against low-level radiation on behalf of their children who had contracted luekemia, she also supported Friends of the Earth and other environmental campaigns. Gayle says in a comparison between Doll and Stewart, 'Alice doesn't see why she and Doll couldn't have been working together all these years, and it is difficult to see why they weren't, since they had such similar backgrounds and concerns. Both strated out as physicians; both changed subjects after the war, moving into epidemiology before it was called epidemiology; both had left-wing political views that drew them to social medicine. Both made major discoveries in the fifties that helped shape epidemiology so it came to include chronic as well as infectious diseases. They both moved in Oxbridge circles, attended the same metteings, were on the same editorial boards. But one went on to fame and the other to obscurity'.

[8] In 1995, Doll was the monitor on the ISIS 4 trials, which was funded to the tune of £6 million by a drug company. The trial was called off because of the unaccountable number of deaths caused in the control group.

[9] Daily Mail. June 3rd 1992, 'Doll ends this article, written at the time of the Rio Summit, warning that we must stop environmentalists whom he describes as the "anti-science mafia", from "hijacking" the Rio summit. [cited in, Walker M J, Sir Richard Doll: A Questionable Pillar of the Cancer Establishment, The Ecologist. Vol 28, 2, 1998]

funding appears to have been that it was not possible for the source of funding to affect his research.[10]

Sir Richard's epidemiological reviews and his personal views have lead to published opinions that there is little or no connection between nuclear power and childhood leukaemia; little or no connection between vinyl chloride and any other form of cancer apart from liver angiosarcoma; little or no connection between power lines and cancer; little or no danger from lead in petrol or fluoride in drinking water, little or no connection between asbestos beyond the point of production and asbestosis, and little or no health damage caused by dioxin. In *at least three* of these instances, lead in petrol, asbestos beyond production and dioxin, social policy in some countries has found his conclusions and those of like-minded scientists seriously wanting.

In 1986, Sir Richard gave evidence in Spain that poor quality polluted olive oil was entirely responsible for an outbreak of ill health and deaths. Spanish epidemiologists, who had concluded that pesticides were the most probable cause, 'resigned' their government posts. Like other industry -funded scientists, Sir Richard has personally criticised other researchers whose work has been critical of industrial products.[11]

In the battle between academic and industry-funded epidemiology, Sir Richard Doll has stood steadfastly in favour of the development of industry funding and against the general idea of investigations being carried out by either lay bodies or public sector institutions. In the eighties he played a part in setting up the research programme of the CIIT and was given an award by the organisation in 1992.[12]

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[10] In 1993, Doll wrote to Cumbrians Opposed to a Radioactive Environment (CORE) after it had criticised the UK Co-ordinating Committee on Cancer Research, (UKCCR) receipt of £6m used in a study headed by Doll, 'To imply that the UK CCR was in some way under the influence of the nuclear industry … this is certainly untrue'

[11] Most notablyLennard Hardell, see later in this article.

[12] Industry, especially the chemical industry hoped that CIIT would gradually siphon off epidemiological research from the Universities and bring it under their control. Established in 1976 as the Chemical Industry Institute of Toxicology, in 2001, the organisation changed its name to CIIT, Centers for Health Research. Appearing to operate like one of the National Institutes for Health, it was cited by its President William F. Greenlee as "positioned to become one of the pre-eminent environmental and human health research institutes with a global role in benefiting the public," CIIT is wholly funded by the Chemical Industry for whom it carries out research. Funded initially by the American Chemistry Council Long Range Research Initiative (LRRI), backers now

In 1972, Sir Richard became Master of Green College Oxford, a new College of Oxford University, which, despite its confusing name, had the principal objective of bringing together students of epidemiology and industry. In his retirement, Sir Richard became a member of the Advisory Council of the American Council for Science and Health, which, frequently funded by Monsanto and other chemical companies, promotes industry and gives the seal of approval to chemicals which have been linked to ill-health by other scientists.

This essay analyses one particular research intervention made by Sir Richard during the 1980s: a research review of the health effects of vinyl chloride on workers, carried out for the American Chemical Manufacturers Association. I have tried to describe, in some detail, the variables which might affect what has come to be known as 'conflict interests' in this case. I argue what I consider to be the most logical case, that the general climate surrounding industry-funded research, especially in the Chemical Industry, and particularly at Monsanto, and especially during the nineteen seventies and eighties, suggests that industry organises its research in such a way that it is mainly uncritical of their products and processes. Further, in certain circumstances, it defends or manipulates evidence of toxic substances, to the detriment of the public, in order to assure profits.

Finding where individual scientists fit into industry machinations, especially in a society, the ethos of which is secretive and defends powerful interests against public knowledge, is difficult. I have relied to a great extent, in my criticisms of Sir Richard's role in this particular case, on what might be called circumstantial evidence, or less value-laden, 'similar fact evidence'. I have tried to take this particular work of Sir Richard's out of the constraints of its academic discipline, and place it in the industrial, PR and propaganda culture, which more realistically describes the public face of contentious industries. I have allowed reflections and information on the chemical industries covert tactics, to extend beyond vinyl chloride and beyond the exact period of Sir Richard's review. This looseness of method is necessary, I think, in order to show clearly that chemical companies and academics have worked to a strategy for decades, a strategy within which Sir Richard Doll, either consciously or unconsciously, has played an important role.

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include government agencies, and corporate clients while its member companies include: Bayer,

Epidemiology and Industry

There are literally hundreds of disputed chemicals produced in developed countries. Some of them are suspected carcinogens, while others are considered mutagenic, and still others just make you seriously ill. These chemicals overshadow the lives of thousands of workers, consumers and citizens. According to an article in the Journal of the American Medical Association, each year some 60,000 deaths in America could be attributable to toxic agents, with half of these being cancer deaths caused by synthetic chemicals. Worldwide, according to a Cornell University study, environmental pollution and degradation are responsible for 40 percent of deaths.[13].

Increasingly in the post-industrial period, everything and everybody has its price, its purpose and its market. A terrible utilitarianism has infected European social and intellectual life. A whole series of agencies and organisations have grown up, apparently to mediate the discourse between academia and industry, between consumers and the risks they take, in reality these agencies only propose and pursue industry's agenda. The advent of these organisations has obscured the singular and major difference, which exists and has been recognised, between industry and academia over the last century; industries collapse if they fail to be consistently profitable.

At the centre of this conflict between industry, its workers and the consumers of its produce is the Epidemiologist. Epidemiology is the science of cause, especially in relation to illness. By investigating the social, personal and biological context of illnesses, epidemiologists hope to uncover how they develop or are passed between people. In theory, armed with this information the public health policy maker regulates to curtail the illness or public health threat. Over the last half century (and more in certain industries), however, and especially since the return to privatised production, some of the most renowned European and American epidemiologists have been employed by industry to *refute,* rather than deduce, the chemical and environmental causes of illness.

These epidemiologists are, at the heart of democracy, defining and re-defining what risk to the population's health, society and particularly industry, can live

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BASF, Chevron, Dow, Du Pont, Kodak, Exxon, Novartis and GEC.

with. Strategic decisions about the production of power, transport, the direction of production in strategic industries and the acceptable death rate of workers are often decided, not by the people or even their political representatives, but by epidemiologists funded by industry.

In the main, the early epidemiologists were either independent scientists or scientists working for public institutions. However, as the lines of demarcation between industry and citizen began to harden in the sixties, it became evident that research into the public health effects of such things as pesticides, for example, would bring independent scientists into head-on collision with industry.

In the nineteen-sixties, industry began to take the tiller and Epidemiologists were invited by company medical officers to study the health conditions of illness in factories. In 1953, not long after publishing his first paper with Bradford Hill[14] on smoking and lung cancer[15], Doll accepted an invitation from the Medical Officer for Turner and Newall, the asbestos producers, to measure the dangers of asbestos fibres inside their principal factory. After beginning work for Turner and Newall, Doll was invited by the Medical Officer of ICI to work for them on the records of angiosarcoma of the liver, a rare disease affecting men who worked with vinyl chloride.

Vinyl Chloride

Vinyl chloride monomer (VCM), a soft plastic, was first invented in France in 1835. In 1929, researchers at Goodrich found uses for the plastic, particularly in the car industry. The production of vinyl chloride had a considerable impact on the US economy, reducing dependence on rubber. By 1945, US and European production had reached 50,000 tons. This increased massively over the next fifty years, from 220 thousand tons per year in 1950 to 26 million in 2000. PVC is now the second most used plastic in the world. Sixty per cent of the 30 billion pounds produced worldwide is used in the construction industry.

[13] October 1998 Bioscience, David Pimentel et al. Cornell University
[14] This study had been begun by the Medical Research Council in 1947.
[15] Bradford Hill A, Doll R. 1950 Smoking and carcinoma of the lung. BMJ 1950; ii, 1271.

Fourteen out of fifteen plants in North America manufacturing VCM are in Louisiana and Texas.[16] These plants release approximately 8 million pounds of pollution annually.[17] They operate among more than 130 oil refineries, petrochemical plants, and other industries clustered along an 85-mile stretch of the Mississippi River between New Orleans and Baton Rouge, infamously known as "Cancer Alley".

1959 – 1975 An Industry in Denial[18]

As early as 1958, the Dow Chemical Company was discreetly testing vinyl chloride on animals to find out whether it was a health threat to workers. The company recorded adverse liver effects. In a 1959 letter, one Dow scientist, writing to B.F. Goodrich's hygiene director, concluded that vinyl chloride could produce 'rather appreciable injury' among workers routinely exposed to the then voluntary standard of 500 ppm. This opinion, the scientist said, 'is not ready for dissemination yet and I would appreciate it if you would hold it in confidence ...'.

In November 1959, a Union Carbide memo suggested that levels as low as 100 ppm 'produced organ weight changes and gross pathology'. Dow researchers published their animal data in 1961, recommending a vinyl chloride exposure limit of 50 ppm, which they alone adopted.

Around 1964, a hand disability (acro-osteolysis) was recognised among VCM workers who cleaned huge, blender-like reactors, and Goodrich sought research help from Cincinnati University's Kettering Laboratory. By 1966, it was clear that acro-osteolysis was endemic to the industry. A 1967 article authored by four Goodrich medical officials in JAMA, suggested, however, that the disease was not serious or common, and was probably due to 'personal idiosyncrasy'.[19]

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[16] Thornton, Joe, *Dioxin: From Cradle to Grave*, Greenpeace USA, 1997, p. 49.
Georgia Gulf Annual Report (SEC Form 10-K)

[17] Analysis of Financial Condition and Results of Operations, Mar. 29, 2000.
U.S. Environmental Protection Agency. Toxic Release Inventory, 1997.

[18] This part of the article is based upon articles put together on the internet, by the Chemical Industry Archive. Jim Morrison's brilliant and lengthy reporting in the Houston Chronicle and Bill Myers television programme *Trade Secrets*. In turn all these sources have drawn from the documents revealed in the Ross v. Conoco case.

[19] This is the same argument that the chemical industry have used against Multiple Chemical Sensitivity, ME and Chronic Fatugue Syndrome over the last thirty years. [See Dirty Medicine:

In 1965, Robert Kehoe of the Kettering Laboratory wrote to Monsanto Chemical Company, then one of the biggest producers of vinyl chloride: 'It is difficult not to conclude, on the face of the evidence, poor as it is, that acro-osteolysis is an occupation disease'. Companies began worrying about the effect reports of the illness would have on the industry. In a January 1966, a memo from J.V. Waggoner of Monsanto, recounts a conversation with a Goodrich executive about the pending European publication of a paper on the disease. Goodrich European representatives had tried to get the authors to change the wording, 'to ensure that it didn't condemn PVC in general'.

Throughout the 1960s, the Chemical Manufacturers Association (CMA)[20] attempted to restrict information about acro-osteolysis and block recommendations that VCM levels inside mixer tanks be set at 50ppm. A January 1966 a memo from Monsanto recounts a conversation with a Goodrich Corporate Vice President reporting acro-osteolysis occurring in workers not involved in cleaning the reactors.

In 1968, Goodrich was still guarding information on scores of cases of the disease, labelling them 'confidential' and 'not to be disseminated'. In November 1969, the MCA Plastics Committee agreed no further proposals for research into the causes of acro-osteolysis would be accepted.

In May 1970, Dr. Pier Luigi Viola, an industrial physician for the Belgian chemical firm Solvay, attempted to reproduce acro-osteolysis in animals and reported instead cases of cancer. The results of Viola's work sent shock waves through the industry: 'Publishing of Doctor Viola's work in the US could lead to serious problems … the present political climate in the US is such that a campaign by Mr. R. Nader and others could force an industrial upheaval'.

Dr. Cesare Maltoni, an Italian scientist, finally ended speculation about cancer and VCM. In 1972, after only a year's work, funded partly by the chemical companies, Maltoni showed that vinyl chloride produced a rare liver cancer, angiosarcoma, in rats at levels as low as 250 ppm. Maltoni's results travelled quickly across the Atlantic. It was two years, however, before the chemical companies were willing to make inevitable

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Science, big business and the assault on natural Health care. Martin J Walker, 1993. Slingshot Publications]

[20] First called the Manufacturing Chemists Association (MCA) and now called the American Chemistry Council (ACC)

regulatory changes. Even this might not have happened had there not been three fatal cases of angiosarcoma recorded among Goodrich workers in Louisville in 1974. In 1973 the Chemical Manufacturers Association was still advising its members to make no public 'reference . . . to the question of carcinogensis'.

Testifying before the U.S. Senate in August 1974, Dr. Marcus Key the Director of the National Institute for Occupational Safety and Health, (NIOSH), said that they had been kept in the dark about Maltoni's results. In October 1974, Viola produced more evidence that vinyl chloride was 'strongly carcinogenic' in animals. Even at this late stage, the industry tried to censor Viola's results. MCA representatives crossed the Atlantic to successfully pressure Dr. Viola into changing his report to downplay the seriousness of his findings.

In the light of Goodrich cancer revelation, OSHA quickly adopted an emergency temporary standard of 50 ppm and proposed a permanent standard of 1 ppm. Products which the industry had been defending were restricted.[21] The plastics industry argued that the instigation of a 1ppm minimum safety standard would eliminate at least 1.6 million jobs and lead to losses of $65 billion. Some companies claimed that the proposed standard was 'unnecessary' and the regulators were risking 'an industry shutdown'. In 1975 the industry lost a challenge to the 1ppm regulation in a federal court.

The Aftershock of Maltoni

The regulatory assault on the VC industry, precipitated by Maltoni, left the industry fearful of being shut down. Their main fear was that there would be new data about cancer produced by VCM at other body sites.

In September 1982, a letter sent to executives of various chemical companies described the setting up of a Vinyl Institute. 'In the recent past, the viciousness and frequency of these attacks (on the industry) have escalated to the point where they are seriously threatening important markets … The Industry is trying to organise itself to

[21] The chemical industry heavily promoted vinyl chloride as a propellant in aerosol cans throughout the late 1950s and 1960s. Yet as early as 1964, *Aerosol Age,* a trade magazine, reported that vinyl chloride in the air could reach very high levels in beauty parlours where hair spray was used- levels that would later be judged by vinyl chloride makers themselves to exceed the dose found to cause cancer in chemical plant workers.

counter these attacks by forming an organisation the Vinyl Institute, whose primary purpose will be to defend and promote vinyl products'.

The success of the chemical industry's continuing attempts to separate vinyl chloride and cancer can be seen in an incident in 1994. The American Cancer Society's authoritative *Cancer Facts & Figures* listed vinyl chloride among possible risk factors for lymphoma, in this way: 'Other possible risk factors include exposures to herbicides, industrial solvents and vinyl chloride'. Hasmukh C. Shah, head of the vinyl chloride panel for the Chemical Manufacturers Association at the time, complained that the publication was misleading, suggesting the following: 'Other possible risk factors include exposure to herbicides, industrial solvents, and vinyl chloride, *although the evidence supporting an association with vinyl chloride exposure is limited'*. In the event, the 1995 revised version of *Cancer Facts & Figures* eliminated all reference to vinyl chloride in the section on lymphoma.

Doll's Review of Cancer and Vinyl Chloride[22]

Doll was approached by Brian Bennett, the Medical Advisor to ICI UK, in the early eighties and began to work with him on the Angiosarcoma Register (ASL), a register of vinyl chloride workers who had died of angiosarcoma. The ASL was begun by Dr. John Stafford, Bennett's predecessor. Bennett's paper with Doll and his colleague Forman was published in 1985 in the British Journal of Industrial Medicine.[23]

In 1984, Bennett discussed with Doll the idea of reviewing the evidence relating to vinyl chloride and cancers other than angiosarcoma. In November, Bennett wrote from the Medical Department of ICI to Dr Carol Stack of the Chemical Manufacturers Association (CMA) in Washington, informing him that he 'had written to Sir Richard Doll, asking

[22] This section is based principally on the letters and documents acquired by the plaintiffs during the Ross case and researched by the author on the internet at Chemical Industries Archive.
[23] Forman D, Bennett B, Stafford J, Doll R. Exposure to vinyl chloride and angiosarcoma of the liver: a report of the register of cases. Br J Ind Med 42:750-753 (1985).

about the possibility of he himself reviewing all the epidemiological data base, in order to perform a critical review of the industry'.[24]

As the Medical adviser at ICI, Bennett was in an important position within the UK plastics industry. Although it might have looked as if he were taking a leap of faith in proposing the apparently independent Doll for the review, Bennett was in fact an experienced defender of the industry position. In 1984, at the same time as he approached Doll, Bennett explained to his American counterparts, how Ecetoc[25] was dealing with a team of Dutch researchers proposing much reduced ppm safety thresholds. Bennett wrote that Ecetoc had set up 'a working group to *combat* this project'.

By the end of 1984, Bennett had apparently persuaded the CMA, the VC Program Panel and medical advisers at Dow Chemicals and Union Carbide that Doll's review would be good for the industry. At this point the projected cost of the review was put at around $5,000.

In April 1985, Bennett wrote to Doll at the Imperial Cancer Research Fund (ICRF) based in the Radcliffe Infimary, telling him that he had the 'necessary confirmation' from the industry to undertake the epidemiological review, a review which Bennett said would be beneficial not just to the industry, but 'to the world'.

In the same year as he began discussing the review with Bennett, Doll organised a seminar on asbestos, health and litigation for Turner and Newall Directors at Green College, the Oxford College of which he was the first Warden.[26] Doll had been working with Turner and Newall, asbestos producers for almost thirty years, reviewing

[24] Although this process appears to be straightforward, readers will see in later parts of this paper, that since the early seventies, Doll already had an ongoing contractual relationship with the Monsanto Chemical Company, which was one of the largest producers of Vinyl Chloride and one of the leading companies in the CMA.

[25] ECETOC (European Centre for Ecotoxicology and Toxicology of Chemicals) was established in 1978 as a scientific, non-profit making, non-commercial association, financed by fifty leading chemical companies. It was established `to provide a scientific forum through which the extensive specialist expertise in the European chemical industry could be harnessed to research, on the ecotoxicology and toxicology of chemicals'. The Association's main objective, they say, is to identify, evaluate and help industry minimise, adverse effects on health and the environment that may arise from the manufacture and use of chemicals.

[26] The College was founded in 1979 following the benefaction of Dr. Cecil Green whose company, Geophysical Services Ltd., later became Texas Instruments. It was created to encourage medical students to be involved in academic programmes in industry.

their data on asbestosis and cancer, and he was now helping in their defence against litigation.

It was initially agreed to start the review in the spring of 1985, but new work which Doll had taken on got in the way and it was not begun until June 1985. In May 1985, Bennett went to Oxford to meet Doll and finalise the Review. Doll thought then that the Review would take a year. Bennett informed the Americans that it could take this long, because Doll was 'greatly in demand' and was then in the middle of reviewing the data on Spanish Toxic Oil.[27]

At their meeting in Oxford, Doll suggested to Bennett that on its completion his work should be peer reviewed by Peto, his colleague who was also employed by the ICRF, and by Geoffrey Paddle and Ted Torkelson, medical advisers to chemical companies. The cost of the review was settled at £15,000 plus expenses.

In March 1986, Doll wrote to William Gaffey, at Monsanto, 'Dear Bill … I have been asked …to review the evidence relating to vinyl chloride to the development of cancers in organs other than the liver'. Doll asked for Gaffey's advice and added that he had recently returned from the annual meeting of CITT at Research Triangle Park, where he had met George Rousch. In November 1986, Gaffey wrote to Doll, reporting on a paper recently commissioned by the CMA from Environmental Health Associates of Berkeley California, on benzene and vinyl chloride. The principal investigator was Otto Wong, who had done much of the work on the Vinyl Chloride, Equitable Environmental Health Study, an ongoing study begun by Gaffey and Tabershaw in 1974.[28]

Wong's relationship with the industry over VCM became rocky when he began to worry about brain cancer in VCM workers. In his letter, Gaffey told Doll not to pay too

[27] Bob Woffinden Cover-up *The Guardian* Saturday August 25, 2001

[28] There was to be a similar but bigger row in 1991 when Wong published the updated version of the CMA ongoing study without first showing it to the CMA. In this study Wong reported a statistically significantly elevated level of brain cancer. The unauthorized publication provoked members of the CMA's vinyl chloride panel and touched off a months-long effort to persuade Wong to recant.

[28] Waxweiler RJ, Stringer W, Wagoner JK, Jones J, Falk H, Carter C, Neoplastic risk among workers exposed to vinyl chloride. Ann NY Acad Sci 271 (1976) 40-48.

much attention to Wong's results. He said that positive lung and brain cancer results had been perceived in earlier papers produced by Dow staff. *These results were, however, felt to be 'based on too few observations to be trustworthy'*. Gaffey referred to a paper by Waxweiler,[29] joking about Waxweiler's honesty; Doll, he said, 'should keep his hands on his wallet' while reading the results.

Doll had finished his review, *Effects of Exposure to Vinyl Chloride: an assessment of the evidence*, by May 1987 and it was being read by others chemical industry researchers. Gaffey appears to have had problems with studies quoted by Doll which had hinted at an incidences of angiosarcoma in men living in the vicinity of plants. In October 1987, the report had been sent around to its various sponsors. On Bennett's suggestion, in February 1988, Doll sent the review to the editor of the Scandinavian Journal of Work, Environment and Health, which accepted it for publication.

Monsanto Through Rose-Tinted Glasses

Apart from his relationship with Turner and Newall, which must be considered central to his early work, the other most consistent relationship which Sir Richard has had with industry has been with the chemical company Monsanto. Unlike the relationship with Turner and Newall, however, his relationship with Monsanto was, until the year 2000, when information about it was revealed in the Ross case, almost completely obscured, by both Doll and the chemical industry.

Doll's relationship with Monsanto and inevitably with the plastics industry, began in the early seventies, when he became an adviser consultant to the company.[30] Apparently long before he worked with Bennett at ICI, Doll was already working with Monsanto. In 1973, perhaps as a consequence of his relationship with Monsanto (or perhaps in establishing it), Doll was asked to attend the presentation in Bologna of

[30] In 2002 Sir Richard Doll desposited a number of boxes of papers at the Wellcome Institute. The further facts of Dolls long term consultative contract, overseen by William Gaffey, was found by the author in these papers. Although these papers were well-weeded, Doll left in them a letter from William Gaffey renewing his contract to act as a consultant for the company at the billable rate of £1,000 a day. Wellcome has a policy document which has to be signed by readers which states that nothing should be written which might damage the reputation of anyone drawing on material viewed in their library.

research which appeared to prove in animal studies that vinyl chloride caused liver damage.

In working for Monsanto, Doll was working for one of the most maligned and criticised industrial companies in the world. In the past, like an iconoclastic company in a Batman story, they had seemed to do everything expected of a chemical company, *writ large*. During the 1970s and 1980s, while Doll worked as a consultant under contract for them, the company was involved in some of the dirtiest covert campaigns in industrial history.

Founded in 1901 in St Louis by Edgar Queeny, and named after his wife, Olga Mendez Monsanto, the company first produced saccharin. After the First World War, Monsanto began producing chemicals. In the twenties they became a major producer of aspirin, and later began producing detergents, plastics, fibre products and silicon wafers.

In the mid nineteen eighties, Monsanto's then president, Richard Mahoney, decided to turn the company into a Life Sciences company, focusing on three areas: food ingredients, medicine, and, most importantly, agricultural products.[31,32] In the year 2000, after constant regulatory difficulties and reports
of dirty tricks and covert dealings, what was left of the Monsanto Chemical company merged with Pharmacia & Upjohn and changed its name to the Pharmacia Corporation.

The company has had a traditional revolving door relationship with government. This mutual exchange between the company and the US government began as early as the Second World War, when the company conducted research for the Manhattan Project. Today, President Bush's Agriculture Secretary, Ann Veneman, was previously on the board of a Monsanto-owned biotechnology company. Most recently

[31] In 1993 the new President, Bob Sapiro started buying into seed stocks, he paid $4 bn for two companies involved in creating new varieties, De Kalb Genetics and Delta Pine Land, then added another $1.4 bn for the international operations of leading producer Cargill. In 1994 Shapiro engineered a $33 bn merger with American Home Products, a drugs company that numbers slimming drugs and contaceptive devices among it's products. Finally Monsanto spent another £320 m to take over UK based Plant Breeding International from Unilever

[32] In 1999 after international criticism, Monsanto agrees not to commercialise their "Terminator" seeds these seeds are genetically engineered so as not to germinte a second generation. This means that the farmer has to buy new seeds every year and is unable to build up independent stocks of seeds.

the Monsanto biotech company has been employed by the US Government, spraying thousands of gallons of Roundup in the war against drugs in Columbia.[33]

An Environmentally disastrous company

Monsanto's list of difficulties with the EPA and other US regulation agencies as well as other companies is a sordid corporate tale. Monsanto has been identified by the Environmental Protection Agency (EPA) as 'potentially responsible' for no fewer than ninety-three contaminated U.S. sites under Superfund law.[34]

In 1986, Monsanto was found guilty of negligently exposing a worker to benzene at its Chocolate Bayou Plant in Texas. It was forced to pay $100 million to the family of Wilbur Jack Skeen, a worker who died of leukaemia after repeated exposures.

In 1991, Monsanto was fined $1.2 million for trying to conceal discharge of contaminated waste water into the Mystic River in Connecticut. In 1993, the Food and Drug Administration approved Posilac, bovine somatropin (BST), despite constant alarms that it is a carcinogen. In 1995, Monsanto was sued after allegedly supplying radioactive material for a controversial study which involved feeding radioactive iron to 829 pregnant women. Also in 1995, the company was ordered to pay $41.1 million to a waste management company in Texas after criticism over hazardous waste dumping.

In 1997, *The Seattle Times* reported that Monsanto sold 6,000 tons of contaminated waste, containing cadmium, believed to cause cancer, kidney disease,

[33] In December 2000, Dutch journalist Marjon Van Royen investigated the health reports on the ground in Colombia, and found that "because the chemical is sprayed in Colombia from planes on inhabited areas, there have been consistent health complaints [in humans]. Burning eyes, dizziness and respiratory problems being most frequently reported." Although Roundup is billed as "safe" for mammals including humans by the U.S. State Department (but not to some insects or aquatic life), there have been too many persistent reports of skin and other problems after fumigation incidents involving farmers and their animals to ignore. Digging further, Van Royen found something alarming: another additive called Cosmo-Flux 411 F was being added to increase Roundup's toxicity. The Roundup/Cosmo-Flux mixture has never been scientifically evaluated nor has the public, either in the U.S., or in Colombia, been informed of this practice. [Toxic Drift: Monsanto and the Drug War in Colombia. Jeremy Bigwood. Special to CorpWatch. June 21, 2001]

[34] Greenpeace, April 19971436 U St. NW, Washington DC 20009

neurological dysfunction and birth defects, to Idaho fertiliser companies. In 1969, Monsanto began producing the Lasso herbicide, known as Agent Orange, and in 1987 it was one of the companies named in a $180 million settlement for Vietnam War veterans exposed to the herbicide. Monsanto produced Cycle-Safe, the world's first plastic soft-drink bottle. The bottle, suspected of posing a cancer risk, was banned the following year by the Food and Drug Administration.

Monsanto's closeness to government and its lavish outlay on politics and campaigning have helped the company maintain a constant battle against regulation.[35] In 1986 it spent $50,000 to combat California's anti-toxics initiative, Proposition 65. The initiative was to prohibit the discharge of chemicals known to cause cancer or birth defects into drinking water supplies.

In 1990, Monsanto spent more than $405,000 to defeat California's pesticide regulation Proposition 128, known as the Big Green initiative. The initiative was aimed at phasing out the use of pesticides, including Monsanto's product alachlor, linked to cancer and global warming.

PCBs

In 1929, the Swann Chemical Company, later purchased by Monsanto, developed PCBs, oily liquids that conduct heat but not electricity. PCBs became widely used in the electrical equipment industry as non-flammable coolants in transformers. Shortly after it began production, the company learned, according to a company memo, that PCBs, 'cannot be considered non-toxic.'

However, for nearly 40 years, Monsanto produced PCBs, and sold them for use in paints, newsprint, carbon paper, deep-fat fryers, adhesives, even bread wrappers. In

[35] Monsanto donated $12,000 directly to Bush's presidential campaign as well as contributed to industry PACs. During the 2000 elections Monsanto gave $74,000 to mainly Republican congressional campaigns.

Anniston, an industrial city in the South, Monsanto routinely discharged toxic waste into a creek and dumped millions of pounds of PCBs into open-pit landfills.[36]

By 1965, US researchers began to find significant concentrations of PCBs in the blood, hair, and fatty tissue of wildlife. In 1966, Monsanto managers discovered that fish submerged in an Anniston creek turned belly-up within 10 seconds, spurting blood and shedding skin; they told no one. In 1969, they found that another creek had 7,500 times the legal PCB levels.

An article in New Scientist in 1969 explained that PCBs 'bioaccumulate[d] along the food chain.' Monsanto continued to mass produce PCBs until 1968, when 1300 residents of Kyush, Japan, fell ill after eating contaminated rice. By the 1970s, research had determined that PCBs were indeed potent carcinogens and their manufacture was banned in the United States and Canada in 1976.

The toxic effects of PCBs, however, continue to affect the environment. In East St. Louis, Illinois, where one Monsanto PCB manufacturing plant was located, there are higher foetal death rates, more premature births, the third highest rate of infant death, and one of the highest childhood asthma rates in the United States.

In Anniston in 1996, state officials and plaintiffs' attorneys were finding astronomical PCB levels in the area: as high as 940 times the federal level of concern in yard soils, 200 times that level in dust inside people's homes, 2,000 times that level in Monsanto's drainage ditches.

The Kemner Case[37]

In the late 1970s, a rail accident in Sturgeon, Missouri, spilled thousands of gallons of wood preservative. Despite the ensuing health problems of residents, Monsanto denied

[36] Monsanto Hid Decades Of Pollution : PCBs Drenched Ala. Town, But No One Was Ever Told.By Michael Grunwald Washington Post Staff Writer.Tuesday, January 1, 2002; 2002 The Washington Post Company

[37] Much of the information in this section is taken from the work of Eric Francis, a New York based award winning investigative journalist who has been writing about Monsanto, Dioxin and PCBs for the

that dioxin was a constituent of the spill; testing, however, documented high levels. In 1979, a number of people, including a woman named Kemner, sued Monsanto for the alleged injuries they suffered.

In Kemner and others v. Monsanto, Kemner's lawyer, Rexford Carr,[38] managed to badly damage Monsanto after asking for the disclosure of all Monsanto's dioxin documents, and calling employees and consultants to give evidence to the documents and against the company. Carr presented the court with a number of examples where Monsanto had either evaded proper labelling regulations or not made public its disposal of dioxins.

Evidence was given in Kemner that Monsanto had, between 1970 and 1977, knowingly dumped 30-40 pounds of dioxin a day into the Mississippi River. The manufacturers of Lysol, recommended for cleaning babies' toys, had not been told about the dioxin content of Santophen, a Monsanto product added to Lysol. Other companies, which had specifically asked about the presence of dioxin in products, were lied to by Monsanto.

Some herbicides, particularly those which Monsanto's 2,3,7,8 - the most potent dioxin - were not labelled as containing dioxin. One witness, who had worked for Monsanto, gave evidence that the company knowingly sent dioxin-contaminated products to its customers from 1978 to 1983. Even though Monsanto had apparently adopted a recommendation that one part per billion of 2,3,7,8 was 'probably medically acceptable', Monsanto was actually sending out one product containing more than 100 parts per billion.

It was also revealed, most importantly, during this trial that Monsanto had embarked upon a deliberate campaign to convince people that dioxin was harmless. As part of this campaign, Monsanto used allegedly fraudulent research to 'prove' that dioxin was not toxic.

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last decade. The Kemner Brief by Eric Francis can be found at http://www and Conspiracy of Silence, Sierra Magazine, September/October 1994.

[38] Carr later wrote the 'Kemner Brief' cited by Eric Francis

Monsanto and Epidemiology

Monsanto staff disclosed during the Kemner trial that studies of the toxicity of dioxin had been rigged by Monsanto. The epidemiologist at Monsanto was William Gaffey. Gaffey was a mathematician, brought in by Monsanto specifically to 'clean up' the public image of dioxin. It was Gaffey to whom Doll had written on first getting the job of reviewing studies of the effect of vinyl chloride on workers and it was Gaffey who actually managed Doll's – at that time secret - consultative contract with Monsanto.

Gaffey retired in 1989 as director of epidemiology for Monsanto and died in 1995 aged 71, still involved in a $4M law suit funded by Monsanto against Rachel's Environmental News[39], which, along with others, had reported the story of his fraudulent dioxin research. Another Monsanto dioxin study, produced in 1984 by Suskind and Hertzberg, [40] was also to become the centre of accusations about fraudulent epidemiology, as a consequence of evidence given in the Kemner trial.

In 1979, Gaffey and Judith Zack had studied workers at a Monsanto plant in West Virginia who had been exposed to dioxin while manufacturing Agent Orange. In their study, Gaffey and Zack reported finding no evidence of unusual cancers.[41]

In his Kemner Brief,[42] Carr wrote 'Zack and Gaffey, two Monsanto employees, published a mortality study purporting to compare the cancer death rate amongst the Nitro workers who were exposed to dioxin in the 1949[43] explosion, with the cancer death rate of unexposed workers. The published study concluded that the death rate of the exposed worker was exactly the same as the unexposed worker. However, Zack and Gaffey deliberately and knowingly omitted 5 deaths from the exposed group and took 4 workers who had been exposed and put these workers in the unexposed group,

[39] All the available information about Gaffey and the Kemner case can be found in the internet archive of Rachel's Environment and Health News, the best environmental publication, available free by email from the Environmental Research Foundation. The editor of Rachel's Environment and Health News, Peter Montague, a tireless environmental campaigner and writer was personally named in Monsanto's action.

[40] Suskind and Hertzberg 1984

[41] Judith A. Zack and William R. Gaffey, "A Mortality Study of Workers Employed at the Monsanto Company Plant in Nitro, West Virginia," in Richard E. Tucker, Alvin L. Young, and Allan P. Gray, editors, Human and environmental risks of chlorinated dioxin and related compounds (New York: Plenum Press, 1983) pgs. 575-591.)

[42] Cited in

[43] In 1949, there had been a massive explosion at the Monsanto development in Nitro, Virginia.

serving, of course, to decrease the death rate in the exposed group and increase the death rate in the unexposed group.

'The exposed group, in fact, had 18 cancer deaths instead of the reported 9 deaths, with the result that the death rate in the exposed group was 65% higher than expected. Consider what the medical community would believe about dioxin, if these facts were known outside the confines of this case!! The plaintiffs, in cross-examining the medical director of Monsanto, Dr. Roush, clearly established the fraud that took place. The cross-examination not only revealed that the overall death rate from cancer was 65% greater in the exposed population than expected, but that the death rate from lung cancer was 143% higher than expected, the bladder cancer death rate was 809% higher and the lymphatic cancer death rate was 92% higher. Death from heart disease was 37% higher than expected.[44]

In December 1985, some months after writing to Gaffey about the vinyl chloride research, Doll added his authority to the dirty tricks campaign that Gaffey was

[44] A complaint which followed the Kemner case, showed clearly how consolidated the links between regulatory agencies and Monsanto were. In 1990, a worker at the Environmental Protection Agency (EPA) forced an investigation into Monsanto on the bases of the evidence heard in Kemner case. On February 23, 1990, Dr. Cate Jenkins sent a complaint to Raymond Loehr, head of EPA's Science Advisory Board and as a consequence the EPA opened an investigation on August 20, 1990. This investigation was closed two years later on August 7, 1992. Jenkins said that EPA had set dioxin standards relying on flawed Monsanto-sponsored studies of Monsanto workers exposed to dioxin, studies that had showed no cancer increases among heavily exposed workers. Jenkins suggested the need for a scientific investigation of Monsanto's dioxin studies, in August 1990, EPA's Office of Criminal Investigation (OCI) recommended that a "full field criminal investigation be initiated by OCI." The charges against Monsanto included: Monsanto failed to notify and lied to its workers about the presence and danger of dioxin in its chlorophenol plant, so that it would not have to bear the expense of changing its manufacturing process or lose customers. A criminal investigation was opened August 20 and was formally closed two years later with Monsanto neither found innocent nor found guilty. OCI said, "The investigation is closed. The submission of allegedly fraudulent studies to the EPA were [sic] determined to be immaterial to the regulatory process. Further, allegations made in the Kemner litigation appear to be beyond the statute of limitations. A insider writing later of this investigation, said that the basis for closing the criminal investigation were fraudulent. Rather than investigating all the allegations regarding Monsanto, he says, the EPA actually spent two years investigating Cate Jenkins. The EPA punished Jenkins for her whistleblowing by giving her no assignments during almost two years; in April 1992 she was finally given work to do, but it was clerical. Jenkins filed a complaint with the Department of Labor. The Labor Department found in her favor, that she was being illegally harassed. But EPA appealed that decision to an administrative law judge, thus continuing the harassment. The judge ruled in Jenkins's favor, but EPA-now with Carol Browner at the helm appealed again, this time to the Secretary of Labor. He eventually found in Jenkins's favor, thus ending the long period of harassment. Jenkins was reinstated and her attorneys fees were paid..

running to clean up dioxin. On December 4, he wrote to Justice Phillip Evatt, who had presided over the Australian Royal Commission that had enquired into the effects of Agent Orange and dioxin on Australian personnel during the Vietnam war.

The Australian Royal Commission had been a whitewash, the concluding report echoing, almost word for word, the evidence given by Monsanto. However, even these hearings could not completely expunge from the record the studies of Lennard Hardell and Olaf Axelson, which had shown that railway workers exposed to dioxin impure herbicides had died prematurely from soft tissue sarcomas. This work was to lead later to the Swedish Government's ban on the use or sale of these herbicides. Hardell gave evidence to the Australian Royal Commission.

Doll's letter to Evatt, fawningly complementing him on his Report, went on to perform a complete character assassination of Hardell as a clinical research scientist.

> Your Review of Hardell's work, with the additional evidence obtained directly from him at interview [probably a reference to Hardell's examination for the Commission], shows that many of his published statements were exaggerated or not supportable and that there were many opportunities for bias to have been introduced in the collection of his data. His conclusions cannot be sustained and *in my opinion, his work should no longer be cited as scientific evidence*[45].

What are we to think of this unsolicited letter, from a renowned epidemiologist, who was at the time being paid £1,000 a day for consultative work for Monsanto, who was briefed and commissioned by William Gaffey, a man who had been employed by Monsanto specifically to detoxify dioxin, and produced just a few months after he, Doll, had begun work on the American Chemical Association and Monsanto supported review of vinyl chloride workers?

Even if Sir Richard were completely naive about the way in which the propaganda war in favour of dioxin was being organised by Gaffey and Monsanto, even if he had no inkling that Monsanto might be involved in rigging epidemiological studies, he could hardly have missed the trial and imprisonment of Dr. Paul Wright, a senior Monsanto staff member, found guilty of massive scientific fraud. The case came to trial in1983.[46,47]

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[45] Letter from Richard Doll, Green College, December 4, 1985 to The Hon. Mr.Justice Phillip Evatt, DSC, LLB [ref: 40-X-016]

[46] Once the world's most notorious polluter, General Electric discovers the cure for cancer, Planet Waves Special Report By Eric Francis:

A joint FDA and Justice Department investigation into Industrial Bio-Test Laboratories (IBT) began in 1976.[48] The lab had performed more than 1,500 studies over the decade prior to the trial and was responsible for between 35 and 40 percent of all toxicology tests in the US. The company was eventually implicated in rigging and manipulating an estimated 10,000 chemical company trials used to register around 325 insecticides and herbicides.

Dr. Paul Wright, a Monsanto toxicologist, took a job with IBT in 1971. During his eighteen months there as Chief Toxicologist, Wright supervised and wrote up trials of Monsanto products. Returning to an elevated position of Manager of Toxicology at Monsanto, Wright tendered the trial reports on which he had worked at IBT to the FDA, the EPA and other regulatory bodies.

At IBT, Wright oversaw and fixed trials on PCBs, anti-bacterials and pesticides, some of them suspected carcinogens. When he was testing Monsanto's herbicide Machete, Wright added extra lab mice to skew the results.[49] In two studies of monosodium cyanurate, an ingredient in a Monsanto swimming-pool chlorinator, Wright replaced raw data with after-the-fact invented records, concealed animal deaths, and reported procedures and observations that never happened.[50] During Wright's trial with three IBT executives, his legal fees were paid by Monsanto.

A post-dated peer review

Faking It, The Case Against Industrial Bio-Test Laboratories,Keith Schneider, Amicus Journal Spring 1983

[47] In a more recent case, Craven Laboratories, a top residue testing lab for Monsanto and other chemical companies was found to have faked studies of 20 pesticides. This case was reported by the companies, but with a long time lag. In February 1994, Don Allen Craven was sentenced to five years in prison and his company, Craven Laboratories, fined $15.4 million for falsifying pesticide residue test results used by the EPA for setting pesticide tolerances in foods and registering pesticides. (Corporate Sovereignty And (Junk) Science Edward S. Herman).

[48] Faking It, The Case Against Industrial Bio-Test Laboratories,Keith Schneider, Amicus Journal Spring 1983

[49] U.S. Environmental Protection Agency, cited in Dan Fagin and Marianne Lavelle, Toxic Deception How the chemical industry manipulates science, bends the law, and endangers your health. Carol Publishing Group,Secaucus, N.J

[50] Dan Fagin and Marianne Lavelle, Toxic Deception How the chemical industry manipulates science, bends the law, and endangers your health. Carol Publishing Group,Secaucus, N.J.)

One morning in January 2000, Sir Richard Doll attended the offices of Covington and Burling, the solicitors in England acting for Dow Chemicals in the Ross case. Doll was to be cross-examined via video on the evidence he had given for Dow.

Doll's 1988 review of the research, intended to find out whether there was any reported carcinogenicity, associated with vinyl chloride other than in the liver[51] had given the seal of approval to the safety of the chemical and its productive process. The paper, based predominantly on an ongoing industry- organised study begun in 1975, concluded that there was no proof that workers contracting any other kinds of cancer, except angiosarcoma, when working with vinyl chloride. The review, like other work in the field, had actually thrown up a slightly higher than average incidence of brain tumours amongst vinyl chloride workers; however, this was, the paper suggested, neither statistically significant nor probably occupationally related.[52]

The importance of Doll's review to the industry, can be judged by the American Chemistry Council (the old CMA, [ACC]) statement issued in 2001. In support of its argument that the vinyl chloride industry was 'clean' the ACC said:

> One [of a number of] scientist, Sir Richard Doll, is the epidemiologist who identified the link between cigarette smoking and lung cancer. These scientists have concluded that a link between brain cancer and vinyl chloride exposure is unlikely. According to Sir Richard Doll, the 'small' excesses of brain cancer that have been identified in the groups studied 'are…not statistically significant, and there is nothing to suggest that they are occupational in origin.' [53]

In the wake of the Ross decision, the American reporter Bill Moyers produced a television programme *Trade Secrets.* Answering criticisms aired on the programme, the

[51] Doll, R. Effects of Exposure to Vinyl Chloride,' Scan. J. Work. Environ. Health 14: 61-78 (1988).

[52] Sir Richard reached similar conclusions when his study of childhood leukaemia around nuclear power stations found an incidence of leukaemia 21% higher than the national average. The researchers explanation was that this elevation was probably not related to the nuclear power plant or the occupation of parents but perhaps due to a `leukaemia virus'. Doll and his colleagues tentatively advanced the theory that the homes of nuclear power workers were so clean that their children were more susceptible to this hirtherto unknown virus.

[53] They quote two scientist, the second being Dr. Aaron Blair, is the director of the Occupational Epidemiology Division of the National Cancer Institute. An old review 1997 he would no longer say the same thing especially on a specific matter like vinyl chloride

ACC again stated, 'The world's leading researchers have studied vinyl chloride and brain cancer and concluded that the evidence does not support a link between brain cancer and exposure to vinyl chloride'.

Doll's cross-examination by Ross's lawyers tested to the limit the idea that industry funding does not affect the results of research. Doll's review was based on three studies deemed to have the right depth of data. The principal of these was the continuing study first carried out by Tabershaw and Gaffey for the CMA. This study had been updated in1982, the report of which was given to industry in 1986, and published in the American Journal of Industrial Medicine in 1991 by Otto Wong at Environmental Health Associates.

The CMA study covered 10,173 men who had worked in 37 plants owned by 17 companies and who had been employed after 1941. A UK study, which was the second largest in Doll's four studies, looked at 5,498 men. The third study carried out in Canada was limited to employees in a single plant, opened in 1943 and which stopped producing VCM in 'the late sixties'. This study compared only 451 men exposed to either VCM or PVC for at least five years (average length of exposure 17 years, with 44% more than 25 years), with 870 men from the same plant considered not exposed, as they had worked at the plant with VCM or PVC for six months or less.

In their cross-examination of Sir Richard, the lawyers tried to elicit information about the way in which the data for the study had been collected and processed. A picture began to emerge of the CMA study as one in which a number of things had been done to manipulate the resultant statistics. Older, highly exposed workers were left out, as were entire plants. Younger workers with little or no exposure were included. Exposures were mis-classified. These defects were recognized and discussed by the CMA and participating companies, but were not corrected nor were they brought to the attention of Wong when he did the first update of the study.[54]

It was revealed during the trial that an epidemiologist with the National Institute for Occupational Safety and Health (NIOSH) had noticed in 1974 that workers with a long latency period had not been included in the study. Unlike the British study,

[54] Huston Chronicle

the CMA study appeared to use no scale of exposure, simply lumping together those who were exposed in groups which were not comparable across different factories.

The question of industry data is central to Doll's review. US lawyers for Ross maintained that in many cases data had been coded before reaching the researchers, so that broader information about their subjects was lost.

Illustrating the kind of error which they had found in the studies, counsel suggests that all the subjects from one plant, a Dow Chemical plant of 57 workers in Michigan, were coded and given to researchers. However, despite the study being only of males, 11 women workers were included. In relation to the Michigan workers in particular, counsel said that personal identifiers were not given in a large number of cases in the original Gaffey study, making any follow-up impossible. According to Union Carbide, one group of workers included in the exposed group had never actually been exposed.

Specifically with reference to Doll's review, counsel were concerned about the inevitably selective nature of a review of this kind. Why, they asked, had he left out from serious consideration a 1987 supplement 7 assessment of vinyl chloride, by the International Agency for Research on Cancer in Lyon, France, which suggested that there was sufficient evidence to link VCM with brain and lung cancer, as well as leukaemia and lymphoma. Doll replied that at least in this matter the IARC investigators were incompetent.[55] Addressing Doll's conclusion that a statistically insignificant elevation of brain tumour incidence was not related to work with vinyl chloride, counsel asked Doll if he could think of another cause of brain tumours; he suggested 'ionising radiation'!

Winding up their cross-examination, the lawyers looked at the issue of acknowledgements and Doll's financial interests in the chemical industry. When Doll had written asking Bennett's advice about acknowledgements, Bennett said that there was no need for him to state funding from the CMA. Doll followed his suggestion and

[55] The IARC had for thirty years been one of the only truly independent cancer research organisations in Europe, making them a constant target for industry and its funded scientists. The IARC study into Vinyl Chloride workers was the only one which committed that Vinyl Chloride could create brain tumours in workers.When the campaign against public information on passive smoking began, one of its targets was a major study being conducted by the IARC, everything was

consequently made no mention in the published paper of the CMA or co-operation with ICI, the major UK producer of vinyl chloride.

Payment for the review from the Chemical Manufacturers Association, paid in part by ICI, and partly by Dow, was £15,000. However, at the time he was carrying out the review, Doll was also receiving money for consultative work from Monsanto, one of the biggest producers of VC and an important member of the MCA. In the years 1987 and 1988 Doll received large amounts for consultancy work from Monsanto.

CONCLUSION ONE: The People's Right to Know

In North America, where journalists do their job and muck-rakers really do rake muck, issues of conflict of interest, bias in epidemiology and industry defence of toxic chemicals have created on open wound which will not scab over. In Britain, on the other hand, where many journalists are more practised in forelock tugging than writing and where putative muck-rakers are frightened off by legal actions, there has been next to no serious debate inside or outside science about these matters.

With one in three people in developed society suffering from some form of cancer in their lifetime, and with little or no headway having been made in uncovering either the causes or preventative strategies, every citizen has a right to be worried about cancer and the environment. Those who work in manual occupations and in factories, who live in inner city areas and who are poor have more reason to be worried, because the incidence of cancer shows a definite bias towards the less well-off.

Epidemiologists who claim to assess carcinogenic risk levels in society have a considerable responsibility. Sir Richard's years of research has led him to conclude that, excluding cigarette smoking, in America, only around 4% of cancer cases are caused by chemicals or environmental pollutants.[56] Other researchers assess levels of chemically caused cases at well over 50%. Clearly these two figures are of a different order of magnitude. Sir Richard's estimate suggests that there is no crisis in environmentally

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done by Phillip Morris and its many acolyte organisations to discredit and change the results of this study.

[56] In The Woman Who Knew Too Much, this figure is quoted as 2%

caused cancer and few significant changes have to be made by industry. The second assessment indicates that industry and the way that we regulate production and consumption in developed society need considerable change if we are to reduce cancer.

The papers disclosed in various legal cases, over the last thirty years, illustrated the fact that industry cannot be trusted to truthfully uncover causes of mortality and illness associated with its products and production processes. Attempts by industry to cover up the harmful effects of its products and processes display capitalism at its most cynical and uncaring.

During Sir Richard's cross examination by Ross case lawyers, he put on record many of the payments which he had received from chemical companies. Doll told the Ross case lawyers that he did not know that he was expected to reveal either his source of funding or his longer term consultancy obligation to Monsanto, at the end of his review on vinyl chloride. Had he made reference to his funding, at the time, however, the medical, legal and epidemiological world might have taken a quite different approach to his paper. After all, not only was Monsanto one of the major producers of vinyl chloride, but both Monsanto and The Chemical Manufacturers Association were deeply involved throughout the 1970s in what might be called dirty tricks.[57]

The debate about whether Sir Richard Doll has been a naive passenger in the machinations of industrial science will probably continue long after his death. It can, however, only be considered ironic that almost forty years after he published the results of his research linking smoking to cancer, he should end up giving evidence for Dow Chemicals, briefed by a law firm which have since the nineteen-sixties been deeply involved in running flak for the tobacco companies.[58]

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[57] At this time, Monsanto was one of the biggest chemical companies and a major producer of plastics. The company later split into a number of different parts

[58] Covington and Burling were the counsel for the Tobacco Institute and played a decisive role in formulating Operation White Coat, a project initiated by Phillip Morris, which retained European scientists to argue the case against passive smoking. The objective of the project was to 'resist and roll back smoking restrictions' and 'restore market confidence' in the cigarette companies. Underpinning this objective were plans to ' reverse scientific and popular misconceptions that ETS(passive smoking) is harmful' and 'restore social acceptability of smoking'. In order to advance this programme, company scientists were collected with the purpose of setting up the Scientific Committee of the International Centre for Indoor Air Research. Also involved in Project White Coat were Shook, Hardy and Bacon the company intimately involved in the Good Epidemiological Practice campaign.

By the time that Doll gave evidence at the offices of Covington and Burling in the Ross case, the company had moved beyond tobacco, incorporating and representing a series of other industries in their covert PR operations, such as Good Epidemiological Practice and the Sound Science Campaign.[59]

CONCLUSION TWO: The Epidemiological Quandary

How can the public evaluate and critique the work of industry-funded epidemiologists? In trying to understand bias or interest conflict, we find ourselves having to look at much more than the conclusions of researchers. We have to take into account the researchers' subjective and perhaps deeply internalised view of society and its organisation. The discourse around this matter runs along well-worn tracks and entails the old discussion about the virtues of qualitative and quantitative research.

The qualitative argument is that the emotional, intellectual and funding orientation of the researcher is as important as the supposedly 'objective' view.[60] The quantitative position has always been that the researcher is only an instrument, guided and constrained by the rules of science.

At the heart of this academic dispute, we might well be able to discern the real difference between the outcome of Sir Richard's review and that of Ross v. Dow. The legal process is much closer to art than science, the emotional disposition and even the body language of actors is openly displayed. Each side states its case subjectively, as well as scientifically, and historical information can be introduced; vested interests are also declared. Within the law, people cry, beg and atone and are punished or vindicated. The legal process unfolds like a dramatic narrative, its actors each revealing a little more of the plot;[61] while the whole process is public and can usually be reported.

[60] There is a wide range of qualitative work and journalistic investigation into industrial illness and the way it is covered up by companies. For example Paul Brodeur's two important books about asbestosis.

[61] Janet Malcolm. The Crime of Shiela McGough. Vintage Books, Random House, New York. 1999

The legal forum would appear far better at getting to the heart of the matter than the closed, secretive and incestuous world of academia, in which the actors do their utmost to disguise their commitment to any cause and the psychological factors which drive them.

Modern Industry has found a powerful ally in quantitative social science, and particularly in epidemiologists. In the nineteenth century, the great British empirical public health researchers, almost all social reformers, went into communities and spoke to their inhabitants. They put epidemiology of a kind, journalism, social science and curiosity to work on behalf of the people in critical juxtaposition to profit-motivated industry and the municipal authorities whose judgement was dulled by vested interests. While a handful of contemporary public health epidemiologists still work in this way, those linked to industry work not for the people, or even to slake their own curiosity, but to defend the profitability of corporations, and to legitimate the authority of the State and its municipalities. Their research is constantly updating not 'what is best for the people' but 'what risk to the people industry can profitably get away with'.

Journalists often talk about the 'smoking gun', which verifies a misdeed; in reporting on academic work, however, it is almost impossible to find a smoking gun. Public Health epidemiologists have been allowed to drift so far beyond normal ethical standards that even the payment of millions of pounds from an interested and highly contentious corporation for a study involving the corporation's product - a sure sign of corruption in any other profession - does not today even count as 'possession of a firearm'.

As in all serious confrontations between those who have power and those who suffer the consequences of that power, it is important that those without power develop tools and instruments to help themselves. At the moment, the public, when they suffer illness, have to suffer a further indignity, by becoming the passive subject of parasitic industry-based research, which does not intend to either help to heal their health or prevent them again becoming ill.[62] This circumstance argues clearly for community-centred, lay epidemiology.

Amongst professionals, while it might not be possible to do anything about the manner in which industry corrupts science, confounds democracy, buys science and confuses truth with profit, those who still inhabit this area, could, if they so wished, transform their own circumstances. If nationally and internationally, academics, clinicians and researchers were to form associations with severe codes of practice in relation to vested interests, industrially funded research would quickly lose standing.

[62] The fact that many public health epidemiologists are medically qualified doctors adds another dimension to their work; in that they have sworn, first to do no harm and then to heal the sick.

APPENDIX FOUR

Rory O'Neil and Hazards the organisation
Conrad Murray and Injury Watch
Fergus Parkinson and the BBC

Rory O'Neill and *Hazards* Magazine

Hazards, is a campaigning magazine funded by the trade union UNISON. It is co-ordinated by Rory O'Neill a UK-based trade union journalist and union safety campaigner. As well as being editor of Hazards magazine O'Neill edits numerous union publications including Trade Union Congress ezines Risks and Changing Times, and books on issues including corporate crime, asthma and strain injuries.

O'Neill is also moderator of the international union health, safety and environment information listserv. He is the health, safety and environment officer of the International Federation of Journalists, and has been a lay (i.e. unpaid) union rep at workplace, national and international levels.

His current interests include campaigning against the corporate safety criminals, overwork, drug and alcohol tests, behavioural safety scams and other employer ruses to do anything but deal with real workplace health and safety issues.

O'Neill quotes his top advice as: "Be annoying, be very annoying." I would say that's farily easy if you rip-off other people's work

Conrad Murray and Injury Watch

Injurywatch campaigns and helps those who have suffered personal injury. You can research and find information on a wide range of subjects involving accidents, injury, negligence and work related illness. We can offer you free legal advice using some of the UK's best lawyers who specialise in your type of injury or work related illness. Call us now 0800 066 99 07

The organisation is owned by Watch Media of the Watch Media Group, Peamore House, Alphington, Exeter, EX2 9SJ. Administration tel. 0800 066 99 07 opt. 5.

Injury watch apparently provides free legal advice, they can be contacted free on 0800 066 99 07

Fergus Parkinson and the BBC

This short puff on Fergal Parkinson was written in 2004 by Michael Marshall. It gives a good idea of who Parkinson thinks he is… or did Marshall get his interviewee mixed up with Ricky Gervais?

JMU Human Geography graduate Fergal Parkinson's career has really taken off since his graduation in 1994. Formerly a reporter and producer for BBC Merseyside, Fergal progressed through the ranks to become one of the BBC's main American correspondants, regularly contributing reports for both the BBC website and more often for radio. The Sheffield-born journalist - who was called upon to cover events from all over the US - has since moved into television reporting, covering the recent severe flooding in large regions of South Asia for BBC News.

Having recently been trained in 'combat safety' - which involved learning how to survive and work in a warzone and how to deal with a kidnapping situation - Fergal is prepared for a potential stint in the Middle East as the BBC look to introduce a fresh news team to the tregion. The straight-talking 34 year-old is not daunted by the prospect, and in fact remains quite calm about the potential dangers he may face. 'The BBC is covered insurance-wise if I get shot now', he joked in a recent interview. With such a calm nerve he is sure to be a big success in such a pressurised profession.

APPENDIX FIVE

Correspondence with Conrad Murray

From: Martin J. Walker
Date: Thu, 23 Nov 2006 10:32:04 +0100
To: <conrad.murray@legalwatch.co.uk>
Subject: Re: 2ND REDOLL from MJW
Dear Conrad,

I notice now that you asked me to call you, I can't afford the expense of that, perhaps you coul tell me what it's about by e-mail.

Regards

Martin

On 22/11/06 16:07, Conrad Murray at conrad.murray@legalwatch.co.uk wrote:

You can call us on the freephone 0800 066 99 07 (using the editorial option) or alternatively send me your number and I will call you.

I'm interested in how Doll-Peto shaped the way cancer was responded to in the UK.

Dear Conrad,

This is just a note to record the outcome of our phone conversation yesterday.

We discussed a possible half hour long documentary film about the work of Sir Richard Doll. I agreed to put together a rough treatment of about 4 pages, which will cover the areas which I think should be examined. Included in this, will be possible interviewees who have the expert knowledge to be included in the film.

I agreed to give you a figure for the cost of this document. I can tell you now that it will be £500. We mentioned that if a programme was found at some date to run this item, then we would discuss my role in the production, i.e. whether or not I worked as a researcher or preferably a consultant. I am happy to leave this question open.

Perhaps you could reply be return either agreeing or not agreeing the £500 fee for the treatment. If you can do this, I will have something with you by the middle of next week.

It was good talking to you and thanks for the possibility of this work.

Regards,
Martin

APPENDIX SIX

Sarah Boseney article on Doll and Monsanto
Friday December 8 2006

Renowned cancer scientist was paid by chemical firm for 20 years

Sarah Boseley, health editor
Friday December 8, 2006
The Guardian

A world-famous British scientist failed to disclose that he held a paid consultancy with a chemical company for more than 20 years while investigating cancer risks in the industry, the Guardian can reveal.

Sir Richard Doll, the celebrated epidemiologist who established that smoking causes lung cancer, was receiving a consultancy fee of $1,500 a day in the mid-1980s from Monsanto, then a major chemical company and now better known for its GM crops business.

While he was being paid by Monsanto, Sir Richard wrote to a royal Australian commission investigating the potential cancer-causing properties of Agent Orange, made by Monsanto and used by the US in the Vietnam war. Sir Richard said there was no evidence that the chemical caused cancer.

Documents seen by the Guardian reveal that Sir Richard was also paid a £15,000 fee by the Chemical Manufacturers Association and two other major companies, Dow Chemicals and ICI, for a review that largely cleared vinyl chloride, used in plastics, of any link with cancers apart from liver cancer - a conclusion with which the World Health Organisation disagrees. Sir Richard's review was used by the manufacturers' trade association to defend the chemical for more than a decade.

The revelations will dismay scientists and other admirers of Sir Richard's pioneering work and fuel a rift between the majority who support his view that the evidence shows cancer is a product of modern lifestyles and those environmentalists who argue that chemicals and pollution must be to blame for soaring cancer rates.

Yesterday Sir Richard Peto, the Oxford-based epidemiologist who worked closely with him, said the allegations came from those who wanted to damage Sir Richard's reputation for their own reasons. Sir Richard had always been open about his links with industry and gave all his fees to Green College, Oxford, the postgraduate institution he founded, he said.

Professor John Toy, medical director of Cancer Research UK, which funded much of Sir Richard's work, said times had changed and the accusations must be put into context. "Richard Doll's lifelong service to public health has saved millions of lives. His pioneering work demonstrated the link between smoking and lung cancer and paved the way towards current efforts to reduce tobacco's death toll," he said. "In the days he was publishing it was not automatic for potential conflicts of interest to be declared in scientific papers."

But a Swedish professor who believes that some of Sir Richard's work has led to the underestimation of the role of chemicals in causing cancers said that transparency was all-important. "It's OK for any scientist to be a consultant to anybody, but then this should be reported in the papers that you publish," said Lennart Hardell of University Hospital, Orebro.

Sir Richard died last year. Among his papers in the Wellcome Foundation library archive is a contract he signed with Monsanto. Dated April 29 1986, it extends for a year the consulting agreement that began on May 10 1979 and offers improved terms. "During the one-year period of this extension your consulting fee shall be $1,500 per day," it says.

Monsanto said yesterday it did not know how much work Sir Richard did for the company, but said he was an expert witness for Solutia, a chemical business spun off from Monsanto, as recently as 2000.

08.12.2006: Profile: Sir Richard Doll, expert who linked smoking and cancer

APPENDIX SEVEN

Correspondence with Sarah Boseley and Ian Mayes

Dear Ian Mayes,

I am an investigative writer and researcher, author of four critical books (since 1993) about Medicine and Medical Research. because I write almost entirely about conflict of interest, I felt it important to write to Sarah Boseley earlier this year when she authored a short article the source for which promoted HRT. I pointed out to her, something which she had not drawn attention to, that the source worked for an organisation funded by Wyeth the pharmaceutical producers of much HRT. Our correspondence degenerated very quickly, after the second exchange she failed to continue, citing 'my attitude' as a stumbling block.

In today's Guardian (8.12.06), Boseley has published a short piece about the late Sir Richard Doll in which she claims to 'reveal' information about his conflict of interest which entails having been paid consultancy retainer fees by Monsanto.

I wrote my first article seriously critical of Doll, in 1998 in the Ecologist and over the years following this, I investigated his work in an attempt to uncover his vested interests. It took me about 8 years to find the information confirmed industry funding, which had been lodged in the Wellcome Library. This documentation showed clearly that while Doll was carrying out research into cancer and chemicals, he was being paid large amounts of undeclared money by various chemical companies - in fact this goes for most of his work be it on nuclear power or lead in petrol.

About a month ago, a number of us published a paperr (Secret ties to industry and conflicting interests in cancer research Lennart Hardell, MD, PhD, Martin J. Walker, MA, Bo Walhjalt, Lee S. Friedman, BA, MSc, Elihu D. Richter, MD, MPH) in the American Journal of Industrial Medicine. For my part in this paper I repeated criticisms of Doll and his research funding that I had made previously in a chapter length paper which has been up on the internet for almost two years now.

My complaint against Sarah Boseley and the Guardian is two fold: Boseley makes no reference at all to my work nor does she reveal the title of the paper that has recently been published. In so doing she makes it appear, with the expression, 'the Guardian can reveal' that the findings published in the paper 'Secret Ties' are hers, or have been arrived at originally by the Guardian. This is journalism worthy of the worst tabloid and is not truthful.

My second and perhaps more important complaint - with respect to historical truth - is that because Boseley can't really be bothered to research her material and includes only one voice critical of Doll, that of Lennart Hardell, she simply re-enforces the rosy picture of Doll as an independent and unbiased scientist and his critics as 'environmentalists' with some strangely hidden agenda. In fact, had Boseley done even minimal research on the subject she would have found a number of epidemiologists, writers and scientists as well as lay legal claimants, who have been struggling for years to make public, in their particular field, Doll's sometimes gross distortions in the area of environmental factors and cancer.

I don't know what I think this letter to you might achieve, I can only say that the question of whether certain cancers are caused by environmental factors is, obviously, of the utmost importance and that the scientific work of anyone who shields corporate industry without reservation, from any responsibility has to be thoroughly examined in an open and public manner. I would suggest that this is what the Guardian should be doing rather than indulging in pop and plageristic puffs for an epidemiologist whose past, is later, inevitably going to catch up with him. The issue of vested and conflicting interests in science is a burning contemporary question and deserves to be seriously aired.

I have placed below, my short more personal message to Sarah Boseley, which she will no doubt seek to argue is evidence of my entirely personal criticism of her and her work; its isn't, it's just hopefully a rude letter.

Regards,
Martin J Walker

Dear Boseley,

I now understand what you meant when you suggested to me in our short but heated correspondence earlier this year, that journalists did not have time to check stories or sources for vested interests.

It took me almost eight years work to uncover the information on Sir Richard Doll which you 'revealed' in the Guardian today, information which has been on the internet in my name for almost two years.

You didn't even put the title of Lennard Hardell's paper, of which I was second lead author in your article. And why, I wonder, did you fail to talk to anyone else - there are many world class academics - seriously critical of Doll's bias towards industry.

Talk about not revealing sources or interests - Doll, Boseley, kettle, black - springs to mind.

Martin J. Walker

on 8/12/06 11:02, sarah.boseley@guardian.co.uk

Dear Martin

I can honestly say that I did not know it was you who had unearthed this material. I was contacted on Wednesday evening by an ex-journalist called Fergal Parkinson, who was selling a story. He had written the whole thing. He said he was part of a group called Injurywatch set up by ex-journalists. They told me they had worked on this for a long time. They faxed me reams of documents, including of course the Monsanto contract.

I had Thursday morning only to work on the story because they told us that the Today programme would be running it this morning - as indeed happened. I spoke to Professor Hardell and to Richard Peto, to Cancer Research UK and to Monsanto - frankly I had no time to do anything else.

If you or Professor Hardell had approached us with the story, clearly I would have credited your paper.

Yours

Sarah Boseley
Health Editor

Dear Sarah Boseley,

Thank you for your straightforward and obviously sincere reply to my rude letter.

I was contacted last week by Injury watch, an organisation that I knew nothing about, I gave them all the references to my last ten years work on Doll, together with a good deal of 'off the cuff' information. The person to whom I spoke suggested that they could make a film about Doll and his work as an epidemiologist. I sent him a costing for a treatment and have heard nothing back from him. I was obviously duped.

Since I began my investigation of Doll's work almost ten years ago now, I have, apart from help from a few prominent academics in different fields, been exposed only to brick bats and lawyers letters - it has been a very hard furrow to hoe.

What has happened with this group Injurywatch makes clear to me the gulf which exists between academia and journalism. There are clear rules governing references in academia while there are none in journalism.

If it occurs to you that there is any possibility of writing a long serious expose of Dolls funded studies which have been observed askance by many people for a long time, please contact me. If you have no interest in this at this time, perhaps you might enquire

of your editor about a serious piece on the Hardell et al paper, which covered other people besides Doll and important aligned issues.

If you intend to write any further, in any way on this subject, you might want to read my 1998 article in the Ecologist about Dolls work and my paper Sir Richard Doll: Death, Dioxin and PVC. which can be found at the Science and Democracy site of Marco Mamone Capria.

Regards,
Martin Walker

Dear Martin Walker

We may return to this, but I anticipate not immediately. I'll read your articles as you suggest and we'll give you due credit next time. As you say, there is a lot more we could take a look at.

All the best

Sarah

APPENDIX EIGHT

Two letter which were not published in the *Guardian*

Dear Sirs,

I happened to notice the article by Sarah Boseley on Sir Richard Doll

http://www.guardian.co.uk/frontpage/story/0,,1967385,00.html

discussing the links between Doll and Monsanto as a story first disclosed by the Guardian ("the Guardian can reveal."). As a matter of fact a full account by Martin Walker of the relationship between Doll and the chemical industry, including of course Monsanto, has been posted for over three years in the web site I manage:

Scienza e democrazia/ Science and Democracy www.dipmat.unipg.it/~mamone/sci-dem as an essay with the title: "Sir Richard Doll: Death, Dioxin and PVC" www.dipmat.unipg.it/~mamone/sci-dem/contri/walker.PDF. Indeed, a close reading of

Boseley's article shows quite clearly that she must have been acquainted with Walker's essay in some version.I think that it is quite unfair to Walker, a clever sociologist of medicine whose investigative work on Doll is widely known, that the Guardian failed to cite him as the real source of the revelation. I am sure that your respected journal will have no difficulty in remedying this wrong.

Yours sincerely
Marco Mamone Capria. University of Perugia, Italy.

Dear Editor,

Sarah Boseley's article about Sir Richard Doll's links to industry come eight-and-a-half years after such general links were first disclosed in an *Ecologist* article, 'Sir Richard Doll: A questionable pillar of the cancer establishment', by Martin Walker and his payments from Monsanto, in another paper by Walker, publiched in 2003. Last year, your equally somnambulant sister paper, the *Observer*, ran a hagiographic profile of 'one of the greatest medical detectives in the world', without caveat, with apparently no knowledge of Walker's revelations, long published on the internet. Walker is by no means Doll's only critic, but he is the prime source of these revelations – please give

credit where it's due. And why the soft pedal? Never mind that the rules on disclosure of conflicts of interest have changed; the ethics are as they ever were. Never mind, either, that Doll paid over his fees to Green College; the question is, what were Monsanto, the CMA, Dow and ICI paying him *for*?

Yours Sincerely
Rose Shepherd

APPENDIX NINE

The letter that was published in the *Guardian*

Richard Doll still deserves our respect

Guardian Saturday December 9, 2006

Richard Doll was one of the world's greatest cancer researchers (Renowned cancer scientist was paid by chemical firm for 20 years, December 8). To this day and in the years to come, many tens of millions of people, in the developing as well as the developed world, will owe their lives and health to his studies. Richard Doll died last year at the age of 92. It is with dismay that we now hear allegations against him that he cannot rebut for himself.

We feel it is our duty to defend his reputation and to recognise his extraordinary contribution to global health, which began in 1950 with his first paper demonstrating a link between smoking and lung cancer. He played a key role in the development of randomised controlled clinical trials - now the standard method by which new treatments are evaluated. He also helped identify several occupational hazards, most notably asbestos, and assess reliably the dangers of radiation.

Richard Doll willingly made his expert advice available to industry and to government. The personal papers that he generously donated to the Wellcome library included correspondence with commercial and other organisations. On the basis of those papers, it has recently been suggested that his advice to industry somehow compromised his own publications. We know of no evidence to support this allegation. He was open about these consultancies and felt it appropriate that companies should seek expert advice on the safety of their products.

It was in the character of this remarkable man that he donated private income to charities and to Green College in Oxford, which he helped to found in 1979 to enhance academic research in the medical sciences. Richard Doll changed the way scientists think about the causes of disease and the methods they use to investigate these. He identified some of the major threats to human health and, in doing so, saved countless lives. He should be remembered with fondness, respect and gratitude.

Professor Colin Blakemore
Chief executive, Medical Research Council
Dr Mark Walport
Director, Wellcome Trust
Martin Rees
President, Royal Society
Professor John Bell
President, Academy of Medical Science.
Professor Alex Markham
Chief executive, Cancer Research UK

APPENDIX TEN

The Injury Watch Article

Injury Watch article on Doll

Rory O'Neill Conrad Murray

Injurywatch discovers secret payments for anti-smoking cancer-link Oxford academic Sir Richard Doll by asbestos and chemical industry

Injurywatch has found a series of secret payments from environmental polluters to the leading Oxford University cancer researcher Sir Richard Doll may have compromised his integrity. By choosing the epidemiological evidence to seemingly omit higher risk groups, adequate health warnings may have failed to have been given. Doll's work certainly seems to have protected the interests of his now proven paymasters in the chemical and asbestos industries and may have led to inadequate protection or warnings for millions of people worldwide.

Cancer research hero Sir Richard Doll was lauded for being instrumental in discovering the connection between smoking and lung cancer. With a knighthood, an Oxford University building devoted to cancer research named after him within his lifetime, freedom of the city of Oxford, a seemingly unassailable reputation and international awards falling to him, Doll dominated the UK cancer epidemiology scene for more than 50 years.

But two scientific papers, “The Causes of Cancer: Quantitative Estimates of Avoidable Risks of Cancer in the United States Today,” (Journal of the National Cancer Institute 66 (1981) which he wrote with Professor Richard Peto and Effects of exposure to vinyl chloride. An assessment of the evidence. Scand J Work Environ Health 14(2):61-78. Doll R. 1988. which he wrote alone have long been regarded by leading scientists in Sir Richard Doll's field as using evidence which might be deemed to massively underplay the risks by using parameters which are seemingly obviously wrong.

Perversely the 1981 US study which was supposed to cover all environmental and work-related cancers, Doll specifically excluded African Americans and anyone aged over 60 from the statistics when exposure would be expected to be higher among blue collar workers and the poor where African Americans might be deemed to be over-represented because of the locations they live and work in. Similarly the cancer incidence would certainly be expected to be highest in the old.

In Doll's 1998 study into vinyl chloride the same policy was followed: Older workers (with heavy exposure) and plants regarded as particularly dangerous seem to have been excluded, while young workers (with little/no exposure) were included, leading to downplayment of the risk.

Now documents obtained by injurywatch from Doll's personal archive reveal that Doll personally, and Green College, the Oxford college he founded and where he installed his wife as warden, were receiving substantial payments from variously Turner and Newall, the notorious asbestos company, Monsanto the American chemicals giant, and from the industry body, the Chemical Manufacturers Association.

Specifically we can show:

* payments of £50,000 to Doll's Green College from Turner and Newall, the asbestos company
* a thirty year financial relationship between Turner and Newall and Sir Richard Doll
* payments of between £12,000 and £15,000 to Sir Richard Doll from the Chemical Manufacturers' Association
* from 1976 to 2002 (and possibly later) payments to Sir Richard Doll of between $1000 (increasing to $1500 a day in 1986) from Monsanto

Sir Richard Doll: the industry man?

* In 1976, in spite of well-documented concerns on the risks of fluoridation of drinking water with industrial wastes, Doll declared that it was "unethical" not to do so.
* In his 1981 report on causes of cancer mortality in the U.S, in the absence of any scientific evidence, Doll trivialized the role of environmental and occupational causes of cancer. He claimed that occupation was responsible for 4% of mortality rather than at least 20%, as previously admitted by consultants to the American Industrial Health Council of the Chemical Manufacturer's Association.
* In 1982, as a longstanding consultant to Turner & Newall (T&N), the leading U.K. asbestos corporation, Doll gave a speech to workers at one of their largest plants. This speech was in response to a TV exposé that forced the Government to reduce occupational exposure limits to an allegedly low level (1f/cc). Doll reassured the workers that the new exposure limit would reduce their lifetime risk of dying from cancer to "a pretty outside chance" of 1 in 40 (2.5%). This, however, is an extremely high risk. Doll also declined to testify on behalf of dying plaintiffs or their bereaved families in civil litigation against asbestos industries. Furthermore, Doll filed a sworn statement in U.S. courts in support of T & N
* In 1983, in support of U.S. and U.K. petrochemical companies, Doll claimed that lead in petroleum vehicle exhaust was not correlated with increased blood lead levels and learning disabilities in children. Doll's research had been generously funded by General Motors.
* In 1985, The U.K. Society for the Prevention of Asbestos and Industrial Disease (SPAID) criticized Doll for manipulating scientific information in order to assure us that only 1/100,000 people working in an office containing undamaged asbestos risked disease and death.
* In 1985, Doll wrote to the judge of an Australian Royal Commission, investigating claims of veterans who had developed cancer following exposure to the

herbicide Agent Orange in Vietnam, in strong support of the defence claims of its major manufacturer, Monsanto. He stated that, "TCDD (dioxin), which has been postulated to be a dangerous contaminant of the herbicide, is at the most, only weakly and inconsistently carcinogenic in animal experiments". In fact, dioxin is the most potent known tested carcinogen, apart from confirmatory epidemiological evidence. Doll's defense, resulting in denial of the veterans' claims, was publicized by Monsanto in full-page advertisements in worldwide major newspapers. Injurywatch has established payments of $1000 a day (increased to $1500 a day in 1986) were made by Monsanto to Doll for more than thirty years.

* In 1987, Doll dismissed evidence of childhood leukemia clusters near 15 U.K. nuclear power plants. Faced with evidence of a 21% excess of lymphoid leukemia in children and young adults living within ten miles of these plants, Doll advanced the novel hypothesis that "over clean" homes of nuclear workers rendered their children susceptible to unidentified leukemia viruses.
* In 1988, Doll claimed that the excess mortality from leukemia and multiple myeloma among serviceman exposed to radiation from atom bomb tests was a "statistical quirk". Doll revisited this study in 1993 and eliminated the majority of cases which developed within two years of exposure, claiming that such short latency disproved any possible causal relation.
* In a 1988 review, on behalf of the U.S. Chemical Manufacturer's Association, Doll claimed that there was no significant evidence relating occupational exposure to vinyl chloride and brain cancer (62). However, this claim was based on an aggregation of several studies, in some of which the evidence for such association was statistically significant.
* In a 1992 letter to a major U.K. newspaper, Doll pleaded the public to trust industry and scientists and to ignore warnings by the "large and powerful anti-science mafia" of risks from dietary residues of carcinogenic pesticides.
* In a January 2000 deposition, Doll admitted to donations from the chemical industry to Green College, Oxford, where he had been the presidential "Warden". He also admitted that the largest "charitable" donation (£50,000) came from Turner & Newall, U.K.'s leading asbestos multinational corporation, "in recognition of all the work I had done for them."Documents obtained by injurywatch document a single payment from Turner and Newall to Green College of £50,000. Other documents show Doll enjoyed a personal financial relationship with Turner and Newall which lasted more than thirty years.

In 1982, following a television exposé which laid bare the dangers of asbestos, Doll was wheeled out by T&N at factory meetings with workers across the UK to reassure their staff that their asbestos exposure danger was what he termed "a pretty outside chance."

In fact using Turner and Newall/Doll's own figures at the time, the cancer risk incidence was 1 in 40 (2.5%) which is very high. But now the incidence has been shown to be much higher. In the UK, between 1900 and 2000 people die each year from mesothlioma, a cancer solely caused by exposure to asbestos fibre. The figure is doubled by other lung cancer deaths caused by asbestos. The annual incidence is expected to escalate with the yearly death rate rising until at least 2012.

Perhaps because of his financial relationship with Turner and Newall, Doll consistently refused to testify on behalf of dying asbestos plaintiffs or their bereaved families in civil litigation against asbestos industries and indeed filed a sworn statement in U.S. courts in support of T & N.

Indeed Doll expressed that the £50,000 payment was in "gratitude from Turner and Newall for work I had undertaken on their behalf."

A year after Sir Richard Doll's death and only after a five year delay in which many potential claimants died, a settlement was agreed on thousands of Turner and Newall claims earlier in 2006. Many people with a valid claim against the company will recieve as little as 10-20p in the pound.

Monsanto

Furthermore injurywatch has discovered that Sir Richard Doll was receiving $1000 a day from US chemical giant Monsanto from 1976 which was increased to $1500 a day (£1000 a day at the then exchange rates) in 1986. Other documents reveal that Doll was paid this fee by Monsanto until at least 2002.

The Health and Safety Executive still quotes the Doll/Peto 1981 study as the basis for their "current best estimate of the proportion of cancer deaths in Great Britain due to occupational exposures over the last few decades as 4%, with an associated uncertainty range of 2% to 8%1 and only now is work underway to seek to update it.

Doll/Peto was viewed as groundbreaking at the time in that it seemed to prove that environmental and occupational causes of cancer represented only 4% of total cancer mortality, when even consultants to the American Chemical Council (previously known as the Chemical Manufacturer's Association) had admitted that the incidence was probably 20%.

A further Doll article in 1988 Effects of Exposure to Vinyl Chloride, reported that there was no significant risk associated with vinyl chloride other than in the liver. It made no reference to payments he was receiving at the time from the Chemical companies but has since been frequently quoted in industry documentation. According to the ACC in 2001 in reference to the paper: "The world's leading researchers have studied vinyl chloride and brain cancer and concluded that the evidence does not support a link between brain cancer and vinyl chloride." They did not add that the article had been reviewed by Ted Torkelson, medical advisor to Dow and Geoffrey Paddle, another chemical industry funded medic.

"At the time many scientists were suspicious that the reports seemed to be too pro-Industry" says Swedish cancer expert Dr Lennart Hardell ". Many wondered if he had close links with Industry and were concerned with some of his findings. Because his conclusions formed the basis for health and safety guidelines and legislation many people have died unnecessarily in my opinion"

Maybe people like the workers at the Vinatex PVC plant in Derbyshire. A joint venture between US company Conoco and a now defunct British company called Staveley Chemicals Ltd it opened in 1969 and converted Vinyl Chloride Monomer to PVC.

By 1984 when the company went out of business dozens of Vinatex workers exposed to Vinyl Chloride were either dead or dying. While Doll concluded there was no significant risk associated with vinyl chloride the reality was quite different. Research by Trade Unions in Derbyshire estimate that about 40% of the 280 workers at the factory during its fifteen year history are now dead, many from rare forms of cancer.

It is now emerged that the cost of Doll's 1988 review into the effects of Vinyl Chloride had been paid by the Chemical Manufacturers Association, with a significant part of the fee coming from ICI, then the UK's largest vinyl chloride producer.

Significantly both Doll's 1981 research with Peto and his own work in 1988 continues to shape the cancer establishments' view: the now somewhat jaded advertising slogan "Let's cure cancer in the Eighties" was the ultimate embodiment of the Doll legacy which has seen millions of pounds of taxpayers money and charitable donations poured into seeking cancer "cures" when only minimal funding has been spent on raising awareness of the need to prevent environmental and workplace exposure.

Sir Richard Doll was closely connected with both the Imperial Cancer Research Fund and Cancer Rearch and indeed the two, now merged, have located their Cancer Research UK Epidemiology Unit (CEU) along side part of the Department of Public Health and the University’s Clinical Trial Service Unit & Epidemiological Studies Unit (CTSU) in the Richard Doll Building.

On the basis of Doll/Peto's 4% figure the number of deaths attributable to occupational/environmental cancer in the UK would be around 6,000 - a significant number at double the number of annual deaths on the road and twenty times those killed in workpace accidents. But from the time of the release of the original paper the research appeared low to other researchers in the area.

Doll/Peto admitted their researches were only based on best guesses, noting that it was "impossible to make any precise attempt at the proportion of cancers that are attributable to hazards at work."

• Many cancers were missed entirely from their analysis or designated not work-related, including melanoma and breast cancer, the most common cancer among women.
• Overall risks to women would be under-estimated because of their relatively late entry to the industrial workforce in large numbers.
• Prostate cancer, the most prevalent cancer among men, was only considered a risk for cadmium-exposed workers. Studies have linked prostate cancer to exposure to pesticides, metalworking fluids and other occupational exposures.
• The study only included 16 substances or industries thought to be carcinogenic to humans, a small fraction the true number.

• The report only considered mortality (deaths) and not morbidity (number of cases), which is a considerably higher figure – in the UK even Doll/Peto's 4 per cent figure would indicate around 11,000 cases a year.
• Excluding cancers in those over 65 years of age drastically top-sliced the number of cancers considered, this measure alone possibly reducing the work cancer toll to less than half the true figure.
• Cancers in those working in small industries were excluded.

• The analysis excluded African-Americans, a group over-represented in high risk jobs and with higher and increasing cancer rates.

• The analysis missed out those with indirect exposures to carcinogens, for example maintenance workers in contact with asbestos. These jobs are now among the highest risk for asbestos cancer in the UK.

• The study only considered human evidence – but for some substances and industries in the rapidly expanding job market the studies hadn't be done, and for many newer exposures and industries conclusive human evidence just wasn't yet available, but there was strong suggestive evidence from the more readily available toxicological and animal studies. As a result many cancers caused or related to workplace exposures would have switched columns to lifestyle, smoking or other causation categories.• The report acknowledged but failed to account for the interaction of exposures, for example the greatly increased risk of lung cancer in smokers who are also exposed to asbestos. Most cancers are likely to result from a combination of exposures or circumstances.

• Non-Hodgkin's lymphoma, thought to be one of the most common work-related cancers, was classified as having only a slight risk association impacting on relatively few workers.

Excerpted from Stop Cancer Before It Starts: How to Win the War On Cancer by Samuel S. Epstein, Ph.D. 2003,
Professor emeritus, Environmental and Occupational Medicine UIC

But from the outset researchers expressed surprise at some of the methodology used in the study.

Researchers noted that the Doll/Peto estimates were based on mortality (deaths), rather than morbidity (diagnosis) and were limited to analysis of those under 65 when cancer is primarily a disease of the old (recent figures showing that cancer deaths under 60 amounted to only 26% of the total). The long latency of several environmental diseases - most notably the asbestos cancer mesothelioma - which can take 50 years to develop were thus largely excluded from the study. It currently kills 1,900 people a year in the UK - almost a third of Doll/Peto's estimate of likely total cancer deaths each year.

Furthermore Doll/Peto only took into account 16 carcinogenic substances when the International Agency on Research on Cancer classifies 89 substances as definite carcinogens, 64 as probable carcinogens and 264 as possible human carcinogens.

The study excluded African Americans from analysis, despite their being over-represented in hazardous trades, and women were excluded by concentrating on male career sectors, when increasingly women were present in the workplace.

Dr James Brophy, Executive Director of OHCOW, a Canadian occupational cancer clinic, sais of the study "Companies were ecstatic because it posed the whole cancer thing politically as a matter of lifestyle. That had consequences for prevention in that it effectively ended any chance of a structured and well resourced strategy to combat cancer worldwide."

Another major review of the environmental and occupational causes of cancer produced in 2005 concluded "it is difficult to estimate the difficulty of Doll and Peto's views but their 1981 article had been cited inover 440 other scientific articles by 2004. More importantly, it has been cited repeatedly by commentators who argue that 'cleaning up the environment' is not going to make much difference in cancer rates."2

The study, co-authored by Dr Richard Clapp of the University of Boston Medical School estimates that the occupational cancer incidence figure given by Doll/Peto probably underestimates the real figure by a factor of between 2 and 4, suggesting the real figure for occupational cancer is between 8% and 16%.

Dr Clapp says “I believe occupational lung cancer is the leading work-related cancer followed by bladder cancer, non-Hodgkin's lymphoma, and leukaemia. Our review paper gives the scientific studies which back this up, along with the various exposures that cause these cancers.

“For example, for lung cancer, we review the evidence that metals, solvents, ionising radiation, reactive chemicals like BCME, environmental tobacco smoke, air pollution, polycyclic aromatic hydrocarbons, pesticides and fibres like asbestos and silica cause lung cancer. This adds up to a substantial burden, and some of these exposures - like asbestos and ionising radiation in underground miners - act synergistically with cigarette smoke and vastly increase lung cancer risk.”

He added “there is no way to put a precise number on this because cancer is such a ‘multifactorial’ disease and even small exposures can be a critical piece of the pie when lots of people are exposed. The reason we have so much cancer is because we are exposed to so many carcinogens; we need to turn that around both by producing and using fewer carcinogenic materials and not exposing workers and others to them.”

Dr Samuel Epstein, emeritus professor of environmental and occupational medicine at the University of Illinois at Chicago and Chairman of the US based Cancer Prevention Coalition, puts the occupational figure in the Clapp range, saying “based on minimal estimates” occupational carcinogenic exposures are responsible for 10 per cent of overall cancer mortality adding that for certain occupational exposures, mortality rates are much higher.

He said “lifestyle academics” including Sir Richard Doll “have consciously or unconsciously become the well-touted and enthusiastic mouthpiece for industry interests, urging regulatory inaction and public complacency”, adding the “puristic pretensions of ‘the lifestylers’ for critical objectivity are only exceeded by their apparent indifference to or rejection of a steadily accumulating body of information on the permeation of the environment and workplace with industrial carcinogens and the impact of such involuntary exposures on human health.”

According to Epstein, any adherence to the Doll/Peto figures is folly because their paper “excluded from analysis people over the age of 65 and blacks, just those groups with the highest and increasing cancer mortality rates. Not content with such manipulation, they claimed that occupation was only responsible for 4 per cent of all cancers, without apparent consideration of a wide range of recent studies dealing with the carcinogenic effects of such exposures… The wild 4 per cent guess was matched by ‘guesstimates’ that diet was determinant in some 35 per cent of all cancers.”

HSE's reaction

More than 35 years on, and despite a plethora of scientific studies showing the extent of hazardous environmental and chemical cancer risks, HSE still broadly accept the Doll/Peto findings and have failed to push the danger in the workplace message.

Occupational cancer remains a low priority, a position in the nation’s public health priorities that can be traced back to Doll/Peto. And it is a low priority also reflected in the approach of health organisations other than the Health and Safety Executive. Cancer Research UK notes on its website: “Most known occupational carcinogens are either banned or well regulated within the UK and the majority of occupation related cancers diagnosed in the UK today are the result of people being exposed more than ten years ago”.

In fact, regulation has not been a cancer cure. Unlike the case of infectious diseases, where a response is frequently swift and draconian, there are typically long delays between the identification of a carcinogenic agent and adoption of adequate measures of prevention. Even then, measures are usually late and incomplete, and will leave a generation to await their fate as a result of prior exposures. Asbestos and ionising radiation are two clear examples. Contrast the decades of occupational health inaction to the foot-and-mouth disease outbreak in 2001, where the army was deployed and a national campaign was mobilised to deal with a non-fatal animal disease because it posed a commercial but absolutely no human health risk.

Instead, the assumption that it is “the dose the makes the poison” has been behind a piecemeal and slow, incremental reduction in workplace exposure limits, for workplaces where carcinogens are handled, quite literally, in industrial quantities. For many substances this presumed dose-response relationship is dangerous flawed.

The asbestos related cancer mesothelioma is a case in point, occurring now in people who had only incidental exposure to asbestos. Only a handful of workplace substances have ever been banned on grounds of carcinogenicity. A UK ban on asbestos - the most prolific ever industrial killer which may claim 10 million lives before it is banned worldwide - only took effect in 1999. An early, precautionary move to safer alternatives would have saved millions. Commercial interests ensured that did not happen.

Injurywatch's reaction

• Occupational cancer prevention should be recognised by the government as a major public health priority and should be allocated resources accordingly.
• A national occupational cancer and carcinogens awareness campaign should be launched as a matter of urgency.
• The Health and Safety Executive should convene a tripartite working party, including representatives of unions, health and safety campaign organisations and occupational disease victims' and advocacy organisations, to review its occupational cancer strategy.
• Wherever possible, IARC Group 1 and Group 2A carcinogens should be targeted for "sunsetting", a phase out within a designated timeframe, to be replaced by safer alternatives.
• Toxics Use Reduction legislation, already used successful in some US jurisdictions, should be introduced to encourage the use of the safest suitable substances and processes. The precautionary principle should be applied to substances suspected of causing cancer in humans.
• A national system of occupational health records should be developed to ensure adequate recording of workplace exposures and other occupational cancer risk factors. Employers must have a duty to inform any workers of their exposures to known or suspected workplace cancer risks and carcinogens.

• A National Exposure Database should be created.
• The Health and Safety Executive should provide resources for training of union safety reps in "lay epidemiology", techniques for the early recognition of work-related diseases, including cancer.
• The UK should implement properly the European Union law requiring workers to have access to occupational health services.
• The government Industrial Injuries Benefit Scheme should be revised and extended to include a wider range of occupational cancers in it scope. There should be a consideration of the introduction of a "rebuttal presumption" of work-causation for cancers with an established association with work.

Citations

1http://www.hse.gov.uk/statistics/causdis/cancer.htm

2Richard Clapp, Genevieve Howe, Molly Jacobs Lefevre. Environmental and cccupational causes of cancer: A review of recent Scientific literature. Lowell Center

for Sustainable Production, University of Massachusetts Lowell, September 2005. Executive summary • Full report [pdf]

from Injurywatch - compensation and injury claims specialists in the UK
by Rory O'Neill and Conrad Murray — last modified 11-12-2006 11:30

Rory O'Neill is editor of Hazards magazine

APPENDIX ELEVEN

Article in the *Independent*
Article in *The Sunday Times*
Article in *The Daily Telegraph*

Leading scientists leap to the defence of 'corrupt' Doll
By Steve Connor, Science Editor
Published: 09 December 2006

Some of Britain's most senior scientists have angrily denounced suggestions that Sir Richard Doll, who proved the link between smoking and lung cancer, had deliberately failed to disclose financial dealings with the chemicals industry.

The scientists said that tens of millions of people owed their lives and health to studies pioneered by Sir Richard. "It is with dismay that we now hear allegations against him that he cannot rebut for himself," the scientists say in an open letter.

Sir Richard, who died last year aged 92, had received consultancy fees of $1,500 a day from Monsanto during the 1980s and several thousand pounds from the Chemical Manufacturers Association, Dow Chemicals and ICI. Although friends and colleagues insist that Sir Richard made no secret of his private consultancies, his close links with the chemicals industry were not widely known.

However, unlike today, there were no rules then about declaring financial interests. Colleagues of Sir Richard point out that it is only in recent years that scientists have been required to disclose financial interests. In any case, they argue, Sir Richard donated his fees to charity.

They also point out that the news of his dealings with the chemicals industry came from his own papers which he had donated to a museum of medical history.

In the open letter, the head of the Medical Research Council, Professor Colin Blakemore, and five other leading scientists strongly support Sir Richard against allegations that his science was compromised. "We feel it is our duty to defend Sir Richard's reputation and to recognise his extraordinary contribution to global health, which began in 1950 with his first [scientific] paper demonstrating a link between smoking and lung cancer," they say.

"He played a key role in the development of randomised controlled clinical trials - now the standard method by which new treatments are evaluated. He also helped identify several occupational hazards, most notably asbestos, and assess reliably the dangers of radiation," they say.

The letter is co-signed by Lord Rees, the president of the Royal Society; Mark Walport, director of the Wellcome Trust; Professor John Bell, president of the Academy of Medical Science; Professor Alex Markham, head of Cancer Research UK and Sir Richard Peto of Oxford University, who worked alongside Sir Richard for 30 years.

The authors say that Sir Richard willingly made his expert advice available to industry and to government.

"On the basis of those papers, it has recently been suggested that Sir Richard's advice to industry somehow compromised his own publications.

"We know of no evidence to support this allegation. Sir Richard was open about these consultancies and felt it appropriate that companies should seek expert advice on the safety of their products," the letter says.

Professor Peto said: "Twenty years ago people often did not disclose funding when writing scientific papers. Nowadays, it is not only standard practice, it is mandatory. I think this change is an improvement, and so did Richard Doll."

11/12/2006
http://www.telegraph.co.uk/health/main.jhtml?xml=/health/2006/12/11/ndoll09.xml
Chemical firm 'paid cancer pioneer'

The reputation of Prof Sir Richard Doll, one of Britain's finest post-war scientists, was under siege yesterday.

Sir Richard, who first definitively linked smoking to lung cancer, conducted much of his research while in the pay of chemical companies.

The American Journal of Industrial Medicine says that Swedish researchers have found that Sir Richard, who also co-wrote a famous paper minimising the role of chemicals in causing cancer, failed to disclose that he was being paid at the time by the chemical company Monsanto.

From 1970 to 1990, Sir Richard, who died last year, was paid up to £1,000 a day as a consultant by Monsanto, now associated with GM crops rather than chemicals.

He conducted research into Agent Orange, the Monsanto herbicide which became infamous when the US used it in the Vietnam War.

During that period, he wrote to an Australian commission investigating its effects on humans and argued that there was no evidence that Agent Orange caused cancer. It was withdrawn in 1971 because it caused birth defects in laboratory animals. It affected a generation of Vietnamese children who suffered skin cancers and deformities.

Sir Richard was also paid £15,000 by the Chemical Manufacturers' Association, Dow Chemicals and ICI to review vinyl chloride, used in plastics. He largely cleared it of any link with cancers apart from liver cancer. These findings were later challenged.

Dr Samuel Epstein, professor emeritus of environmental and occupational medicine at the University of Illinois School of Public Health and chairman of the US Cancer Prevention Coalition, said Sir Richard was a scientist who "went awry".

He said that in the 1950s and 1960s Sir Richard's work linked cancer with an immense number of substances including nickel, asbestos, gas production, tars, and radioactivity.

"However, over subsequent decades, Doll drastically changed his views and gradually emerged as a major defender of corporate industry interests," he says. Sir Richard "trivialised or dismissed industrial causes of cancer which he predominantly attributed to faulty lifestyle, particularly smoking".

Sir Richard has also been attacked for his decades-long relationship with the asbestos company Turner & Newall.

In 1982, he told workers worried about dying from cancer that the risk had been cut to "a pretty outside chance" of one in 40. This was regarded, in fact, as a rather high chance.

He also refused to testify for dying plaintiffs or their families in civil litigation against the asbestos industry.

Later, he admitted that Turner & Newall had given £50,000 to Green College, Oxford, which he founded.

Prof Sir Richard Peto, a friend and fellow cancer expert, said there were no rules governing disclosure of consultancies 20 years ago. "Everybody working in this area knew Richard consulted for industry and would do court cases," he said. "It does not in any sense suggest that his work was biased."

Prof John Toy, medical director of Cancer Research UK, said: "Richard Doll's lifelong service to public health saved millions of lives."

http://www.timesonline.co.uk/article/0,,8122-2493914,00.html
The Times December 08, 2006

Scientist who gave Agent Orange the nod worked for its maker

Thair Shaikh

Sir Richard paid $1,500 a day by firm

Claimed chemical did not cause cancer

An eminent British cancer specialist stated that there was no evidence that the notorious defoliant, Agent Orange, was a carcinogen while he was being paid as a consultant by its manufacturer, it was reported last night.
Sir Richard Doll, the epidemiologist, whose pioneering work in the 1950s proved that smoking caused lung cancer, was receiving a consultancy fee of $1,500 a day in the mid-1980s from Monsanto, then a major chemical company and now better known for its GM crops business.

While in its pay, Sir Richard wrote to a Royal Australian Commission investigating the potential cancer-causing properties of Agent Orange, made by the company and used by the US in the Vietnam War.

According to documents seen by *The Guardian,* Sir Richard said that there was no evidence that the chemical caused cancer.

Millions of litres of Agent Orange — so called because it was stored in drums marked with an orange band — was sprayed on to South-East Asia. The propensity of it to cause birth defects was noticed in laboratory animals in 1969 and its use was suspended in 1971.

The chemical affected a generation of Vietnamese children born from the 1970s onwards, who showed abnormally high levels of skin diseases, cancers and congenital deformities. Other documents seen by the newspaper revealed that Sir Richard had also been paid a £15,000 fee by the Chemical Manufacturers' Association and two other leading companies, Dow Chemicals and ICI, for a review that largely cleared vinyl chloride, used in plastics, of any link with cancers, apart from liver cancer. His conclusions were disputed by the World Health Organisation but manufacturers' trade associations used his findings to defend the chemicals for more than a decade.

Yesterday Professor John Toy, medical director of Cancer Research UK, which funded much of Sir Richard's work, defended his reputation.

Prof Toy said that times had changed and that the accusations needed to be put into context.

He said: "Richard Doll's lifelong service to public health saved millions of lives. In the days he was publishing it was not automatic for potential conflicts of interest to be declared in scientific papers," However, some scientists, including Swedish Professor Lennart Hardell, believe that Sir Richard's work has led to the underestimation of the role of chemicals in causing cancer.

He said: "It is OK for any scientist to be a consultant to anybody, but then this should be reported in the papers that you publish."

Sir Richard, who died last year, was revered in the medical and scientific establishment for his research that proved that the biggest lifestyle cause of cancer was smoking. Monsanto said last night that it could not confirm how much work Sir Richard did for it but said he was an expert witness for Solutia, a chemical business spun off from Monsanto, as recently as 2000.