# Risk Aversion
## The Rise of an Ideology

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In recent years, there has been a huge increase in concerns about the risks involved in industrial products and processes (see Beck 1992). Over the past three years alone, there have been controversies about biotechnology, pharmaceuticals, nuclear power, overhead power lines, alcohol, tobacco, food additives, silicone breast implants, computer games, toys, fireworks, contraceptive pills, mobile phones, automobiles, sugar, salt, soft drinks, and water purity. The list is seemingly endless. In recent years, we have also witnessed a huge expansion in the number and influence of anti-risk watchdogs, lobby groups, and activists. The exposure, discussion, and elimination of real or potential risks has become a primary political concern. Any risk of disease or death, no matter how small, is newsworthy and the need to eliminate even minor risks goes unquestioned, contributing to a widespread fatalism in the face of ever-tightening health and safety regulations.

Some say we are now living in a "risk society" (Beck 1992), a new era in human history in which industrial development is producing risks that are global in scale and threaten to undermine or even destroy ongoing economic progress. There is much in this line of argument. Certainly, the environmental impact of industry is higher than ever before and there is widespread concern about the risks involved in developments such as biotechnology.

We prefer, however, to talk of the "non-risk society" (Neal and Davies 1998), a combination of cultural, economic, and political developments that has resulted in a widespread obsession with, and intolerance of, any risks, great or small. This ideology of extreme risk aversion is not restricted to industrial products and processes: lighting a cigarette in public is now a risky business in itself as is trying to defend the present regulations for drinking and driving. The culture of risk-aversion is now so strong and so pervasive in western societies that heavy-handed and irrational responses to risk do not concern or surprise us. Risk-aversion has become the both the norm and the key *fin-de-siecle* cultural value.

Aversion to risk now affects all areas of our lives. Most children are now driven to and from school, even though the rate of child homicide is at an all-time low. Smokers are abused and discriminated against for the smoke in the air near others, even though there is little convincing evidence of a link between "passive," environmental tobacco smoke and lung cancer (Nilsson 1997; Johnson and Ulyatt 1991). Genetically engineered foodstuffs are banned from the British Parliament, although there is no evidence that they are at all harmful.

From an historical point of view, we can see just how radical the cultural and political changes have been. Human existence has always been a risky affair and high levels of risk used to be reflected in, and integrated with, the activities and cultures of bygone societies. Even in the early part of this century, the incidence of death in childbirth was high; infant mortality was high; the risk of death in war was high; the risks of death from influenza and tuberculosis were correspondingly high. Before penicillin, a grazed knee or a cut from a dirty knife could mean death and surgery of any kind, even dental surgery, was much more dangerous than it is today. These kinds of "class A" risks have now all but disappeared. The kinds of risks that concern us today would once have been seen as unimportant.

## Medicines and risk

The pharmaceutical sector is a good example of an innovative industry where risk assessment, management, and perception are prime concerns. In order to put the current ultra-vigilant climate in its context, consider that the first regulations concerning the development of new medicines were introduced in the United Kingdom only 30 years ago, in the 1968 Medicines Act. Before this, the development of drugs was almost completely unregulated (Neal 1995). Consider as well that adverse drug reactions (ADRs) at this time were more common and more serious than they are today but were understood to be just one among many serious risks to life. Risk was thus an integrated aspect of life—

not one to be eliminated at all costs. Indeed, so strong was the tolerance of risk by recent standards that it took the 1961 Thalidomide tragedy, which resulted in 4,500 deformed children (Burnstall and Reuben 1990; Deutsch, Sjostrom, and Nilsson 1972), to effect a widespread demand for safety regulation.

Even then, the government of the United Kingdom was reluctant to act. In 1964, it set up the Committee on the Safety of Drugs (sometimes called the "Dunlop Committee" after its chairman, Sir Derek Dunlop) to administer and oversee the testing of new medicines but, tellingly, the Committee was given no statutory power to inspect or demand comprehensive testing procedures (Maynard and Hartley 1984). At that period in the history of British society, the establishment of such a committee would usually have been sufficient to assuage public and professional fears about risk. However, the Thalidomide disaster was not a discrete event but an ongoing and highly visible tragedy, as every neighbourhood was forced to witness one or two children growing up with severe disabilities. Eventually, ongoing public disquiet and political agitation led to the more stringent regulations of the 1968 Act (Neal 1995).

The situation in the mid-1960s, therefore, differed markedly from that today, when the Medicines Control Agency, the Committee on the Safety of Medicines, and the European Medicines Evaluation Agency constitute a powerful anti-risk establishment and public anxieties about drug safety are hypersensitive. As was the case with Opren (benoxaprofen) in the early 1980s, the mere whiff of concern about drug safety now leads to sensationalization by the media, public outcry, and political pressure to impose a ban or further regulation. The Opren case was particularly instructive, as the panic resulted in the withdrawal in August 1982 of a highly effective medicine from the market (Inman 1993). Indeed, residual public anxieties about the drug have remained so strong that it has been impossible for the authorities to reintroduce it, regardless of the fact that research has established its safety and efficacy.

The comparison between Thalidomide and Opren demonstrates how far-reaching the changes have been in British society. The Thalidomide tragedy happened in a culture of risk tolerance, wherein anxieties about medicines were largely restricted to expert and political lobby groups. Even after 4,500 children had been damaged, it was very difficult to secure comprehensive safety regulation and the initial response to the tragedy was the establishment of a voluntary scheme friendly to industry. The tragedy thus happened when there was no safety infrastructure and no "culture of fear" (Furedi 1997). Today, the pharmaceutical industry has to cope with a comprehensive safety establishment

and infrastructure, a large number of highly motivated lobby groups and industry critics, and a cynical and entrepreneurial army of lawyers who exploit the safety imperative that has developed over the last 30 years. During this period, society has moved from one extreme to another: in the 1960s, it took a real human tragedy to change the system; now it takes only the rumour of harm.

Most industries now have a safety bureaucracy that has the power to test their products, oversee their manufacturing processes and, in the end, ban a product or shut down operations. In addition, most industries have one or more highly organized lobby groups who make it their business to monitor the industry, to demand ever-increasing regulation, and to report any breaches of existing ones. Many industries now also contend with less organized but more energetic activist groups whose primary concern is to ban a specific product, to increase the regulations imposed upon particular industries, or even to shut down a whole industry. An important feature of the modern corporate environment thus consists of existing or potential safety regulations and the influence of lobby groups and activists upon these regulations and upon demand for products.

## The rise of the non-risk society

It is ironic that the obsession with health and safety of the last 20 years should come at a time in our history when we are living longer and healthier lives than ever before. If we consider standard indicators of general welfare—maternal death in childbirth, infant mortality, income per capita, death from infectious diseases, average life-span—it is plain that we have never had it so good. It is puzzling, then, that the anti-risk society should have arisen just when we were making the most spectacular progress in all of these areas.

In the old high-risk societies, people were confronted on a daily basis with real and immediate risks to their lives and those of their children. Reading through accounts of the Victorian working classes, one sees that the attitude towards risk was stoic and realistic and an assessment of risks to life and of the strategies for dealing with them were integrated into everyday life. Expectations from life were modest. They had to be, as an accurate assessment of circumstances and prospects was essential for survival. With no welfare state and scarce resources, impractical dreamers were liable to perish.

In western industrial democracies, huge advances have been made in general health and welfare: there have been obvious advances in the effectiveness and availability of medicine; most western countries have welfare states of one form or another, which protect people from absolute poverty; scarcity of food is a thing of the past. Other technological

and social changes have contributed to new forms of culture: western societies have become more "open"; television exposes people to a daily dose of beauty, wealth, and physical perfection; and the certainties and restrictions of religious belief have disappeared for most people.

The interrelationship of these changes has meant a shift in the way people understand the relationship between themselves, their circumstances, and their place in society (Neal 1998). An important feature of this has been the on-going expansion of expectations. Every day we are exposed to accounts of instant wealth, instant beauty, instant perfection. People are brought up to seek individual growth, to express themselves with no regard to self-control or restrictions—in other words, to expect health and happiness. It is no coincidence that the rise in aversion to risk should coincide with the rise of "healthism," for the two are related. Everybody, no matter how ugly or physically repulsive, now believes in physical perfectability (Charlton 1998): if only one worked-out twice a week, if only one replaced chips with grated carrots, if only one stuck to a regime of 30 sit-ups a day, one could attain one's birthright, physical attractiveness, health, and longevity.

A related contributory factor in the rise in aversion to risk has been the denial of death (Walter 1994). In the high-risk societies of old, death was integrated into everyday life. People of all ages, mothers, children, and the aged ailed at home and died surrounded by family and friends. Death was a sad business but it was understood and treated realistically. People did not expect to live to a ripe old age nor did they expect their family and friends to do so. When the time came, both caring and dying was integrated into the practicalities and ethos of domestic life, where children were fully exposed to the sights and sounds of expiring relatives and learned not to expect too much of their own lives.

In the twentieth century, due largely to medical advances and the growth of wealth, death has become less common among the young and middle-aged. Most people who die do so now in old age. The threat of death at any age from infection has retreated from most groups in society and people thus expect to live healthy and fulfilling lives and to die when they are old. Death has become segregated as a feature of old age. Furthermore, with the expansion of the health services and the welfare state, dying has become separated from the home. More people now die in hospital rooms that are spatially and symbolically separate from their everyday lives. As a result, the twentieth century has seen the denial of death and dying. From being something expected and integrated within the domestic sphere, death has become increasingly segregated and hidden from view.

This trend has contributed to the development of healthism and aversion to risk in two ways. First, health now resembles a pension-fund

as people seek to accumulate "health-credits" during youth and middle-age by doing regular exercise, eating the right foods, and avoiding risk-factors. When they think of it at all, people view their deaths as a function of how virtuous they have been in terms of body maintenance and how vigilant they have been in terms of avoiding "body-attack." Although most prefer not to think of their deaths at all, they are concerned to push the dreadful moment back in time and out of sight.

Second, whereas premature deaths were once commonplace and accepted, such deaths are now seen to be singular atrocities. In the culture that denies death, premature deaths are now so shocking that they make potent media stories and can become the focus of angry campaigns. One such case involved Leah Betts, who died in 1995 as a result of taking a tablet of Ecstasy (Methylenedioxymethamphetamine or MDMA). Whereas death at this age through infection or accident would once have been commonplace, in the 1990s it was shocking. As Douglas (1992) and Douglas and Wildavsky (1982) have observed, when risky events happen, blame tends to follow. In the early days of the Leah Betts tragedy, everybody concerned with her death—her parents, their lawyers, and the media—pinned the blame on the tablet of Ecstasy and, thus, on the person who had supplied her with the drug. Very soon, however, the blame shifted to a problem with the system of educating young people about drugs. Within a week of her funeral, Leah Betts became the mascot of an anti-drugs campaign that used her premature death to shock those who might be tempted to take drugs. One particularly tasteless campaign used a poster showing Leah Betts and the slogan "Sorted," drug-culture jargon for having been supplied with drugs for the night (Saunders 1997).

The shock value of premature deaths is now such that blame is not restricted to immediate circumstances but becomes a resource for wider campaigning. If a child dies from leukaemia or a woman of middle age dies from a thrombosis, those related to the victims are unlikely to face these singular tragedies with the stoicism of old. The first question on the lips of the bereaved is still "Why?" but the second question is now "Who or what is to blame for this?" In the death-denying, anti-risk culture that exists today, the answer to these questions is invariably that there is a problem with the "system."

A child runs out in front of a fast-moving truck. In the 1930s, such an event may have been met with grim stoicism. Child mortality was higher and there was much more of a sense that "these things happen." Today, however, grief is met with the conviction that no child should ever be run over, that such an event is avoidable and, indeed, immoral. The stoic acceptance that such things happen will have been replaced with a conviction that the child has been let down by "the system":

trucks are allowed to drive too fast through the town centre; there is absence of speed bumps on that particular stretch of road; there should be a crossing-guard on that corner in school hours. The next question, "Who is to blame for this?" leads the bereaved to point the finger at those responsible for flaws in the traffic-control system.

Likewise, if a woman dies from a thrombosis—something that has happened to generations of women—the bereaved are unlikely to accept that such things can happen spontaneously. Because premature death is unexpected nowadays, there is the feeling that something must have caused this to happen. The system let the woman down. If no active cause can be found, then the question becomes "what allowed this to happen?" The reason for death can thus be cast in terms of neglect—too few check-ups or blood checks, for example—and the blame can be attributed to a lack of vigilance on the part of the medical authorities. This can lead to a lawsuit or a campaign against the negligent bodies. If a possible active cause can be identified, however, then blame can be assigned directly both to the suppliers and to the regulators. If the woman had been taking an oral contraceptive, for instance, then blame can be assigned both to the manufacturers for providing the product and to the regulatory authorities for allowing it to be sold. The possibility that the contraceptive was either unrelated to the death or contributed only partially to it is neither here nor there. Increasingly there is no such thing as a blame-free premature death.

## The rise of the health and safety establishment

Along with the rise of healthism, aversion to risk, and denial of death, there has been an explosion in healthist and anti-risk bureaucracies, anti-industry lobby groups, and industry-specific activists. These bodies are important features of non-risk society and culture and sustain the widespread cultural values of avoiding risk and denying death. In turn, they themselves are validated and sustained by these values.

The blueprint for intervention by large-scale health-and-safety bureaucracies was established in the municipal works of the mid-nineteenth century (Davies 1995). Throughout the late nineteenth and early twentieth centuries, however, the power and influence of such bodies was limited: the *laissez-faire* attitude towards commerce and risk and regulation remained strong so that Britain remained a high-risk culture up until 1945. During the same period, expectations concerning health and death remained low until the establishment of the welfare state and the National Health Service, which enshrined the principle that the state should be responsible for ensuring the health and welfare of its people. At first, the health bureaucracies

controlled by the state were overwhelmingly concerned with treating injury and illness and overseeing death. Over the years of expansion, however, the institutions have increasingly developed a secondary concern, prevention.

The public-service sector has always attracted people whose political views are left of centre. This is understandable as the notion of community and public service is at the heart of socialist and communitarian ideologies. The growth of the new bureaucracies overseeing health, welfare, and safety and the increase in the number of regulators thus provided attractive employment opportunities for those with altruistic philosophies concerned with "equalizing," "helping," "empowering," or "saving" people. The "Long March" to the regulatory health, welfare, and safety bureaucracies thus began as soon as they were established and has continued to this day.

Partly due to their political constituency and partly because their primary concern was to ensure public health and safety, such organizations have traditionally been unsympathetic to industry. As we have seen in the case of the Dunlop Committee, until the mid-1960s the influence of most regulatory bodies was modest compared to the power they wield today. In the wake of scandals such as the Thalidomide tragedy, the asbestos controversy, and the establishment of the link between tobacco and lung cancer, however, the view grew that industry was taking unnecessary risks with workers and consumers and should be more tightly regulated. Since the 1970s, industrial processes and products in Britain have been ever more tightly controlled by domestic and European regulators. The health-and-safety bureaucracies and regulators have proved to be largely unsympathetic both to the need to sustain consumer demand for particular products and to the costs that increased regulations impose upon industry. Ironically, perhaps, the time of the greatest expansion of health-and-safety bureaucracies and regulatory bodies was in the 1980s, when Chicago-School style economics seemed to be winning the day and there was a true collapse in the egalitarian ideologies that had sustained many in the trade unions and the public sector for so long. Over the 1980s and into the 1990s, there has been a huge expansion in bureaucratic power. In an era when conservative politicians espoused deregulation, the health-and-safety bureaucracies and regulators quietly issued regulation after regulation, increasingly responding not just to established risks but also to "potential risks." From 1979 to 1989, the main threat to economic liberalism shifted quite clearly from the Soviet Union and the resistance of organized workers to the systematic regulation and bureaucratization of industry in the name of health and safety.

### *The "bureaucratic ratchet"*

Once a critical mass of bureaucracy was established, a regulatory dynamic—which we term the "bureaucratic ratchet"—set in. The first feature of this concerns blame in the event of injury. When somebody is damaged by an industrial product or process, people look around for someone or something to blame. As we have seen, in the non-risk society blame is typically two-pronged. The first kind of blame—*blame for commission*—is directed at the manufacturers of the harmful process or product. The regulatory authorities do not mind this kind of blame. Indeed, through fingering companies or through general campaigning, they often actually encourage it. The second kind of blame—*blame for omission*—however, is more often directed at the regulators. If an industrial product or process is found to be harmful, then people blame not only the provider but the regulator as well. Those concerned with the victim or victims berate and even sue the regulators for not having regulated this particular risk out of existence.

As a result, there is an incentive for regulators to "play safe." It is their job to keep the public from harm from a particular industrial process or product. If they fail to do so, it is not only the industry but they who are in the firing line. Another feature of the bureaucratic ratchet that leads to greater and greater regulation concerns the job of the regulators. Health-and-safety regulators are employed to ensure health and safety. They have a mission. If they are to progress in their chosen career, they have to be seen to have achieved something. Leaving existing regulations intact achieves nothing. Understandably, as regulators are paid to regulate particular industries, this is precisely what they do. For them to do nothing might well be the best thing for the industry, its workers, and its consumers. Because of their brief, however, the regulators simply cannot do this. So, they have meetings; they "liaise" with other health-and-safety executives; they fly to Brussels to discuss harmonization and pan-European directives; they commission research to find undiscovered risk factors; if such are revealed, they publicize them and seek a mandate for ever more stringent regulations. This is not to criticize such professionals; they are doing what society pays them to do and that is to regulate.

Although there is a tendency among regulators to "play safe" so that they cannot be blamed for the sin of omission, they may nevertheless benefit from harm being done to people by industrial products and processes. Should one or a number of people be harmed or killed by an industrial product, it invariably ensures a popular mandate for a further tightening-up of the existing regulations.

A minor disaster may also have structural implications for the regulatory body itself. Regulatory organizations are not homogeneous and within them there will always be those who support the status quo and those who want more regulation. An industrial disaster or widespread harm from a product strengthens the hand of those who want enhanced regulations. The "I told you so" factor is extremely powerful in times of crisis and can result in a shifts of power within the regulatory body, usually in favour of further regulation.

## Power without responsibility—lobby groups and anti-risk activists

Another significant force in the non-risk society consists of those pressure groups whose primary concern is to see further regulation or a complete ban on a particular process or product. Such groups are well known for their attention to the generation of nuclear power and the reprocessing of nuclear waste, the biotechnology industries, road-building, tobacco, alcohol, the meat industries, and the fur industry. And, the list goes on. Such groups campaign by publicizing as much bad news about an industry as possible. As well as generating a constant stream of anti-industry propaganda, some of the larger and wealthier groups are able to commission or carry out their own research aimed at identifying breaches in regulations, demonstrating the inadequacies of the present regime, or identifying further hazards and risks. They have a vested interest in establishing harm or damage done by the industry so that they can point out the inadequacies of the status quo, "name and shame" particular individuals and institutions, and put pressure on the regulatory bodies to regulate or to ban. They are thus the masters of two-pronged blame—of commission by industry and of omission by regulators.

The position of such groups differs from that of the regulators in that they do not have to be circumspect in their approach. They do not have to "listen" to industry. They can, in other words, be one-sided and more reckless in their claims. One of the main weapons of such groups is the press-release. Activists and academics are often masters at putting "spin" on particular opinions, developments, or research findings. Bad news for industry is good news for them. Every death or injury caused by a product or process is followed by a detailed and carefully crafted press-release, which is despatched with immediate effect to selected news-sources and journalists. The aim of such releases and statements is to produce a full-blown public panic by sensationalizing negative news about a particular product or process.

Such attacks are easy to make but difficult to refute so that anti-risk lobby groups, activists, and academics can make wild claims with

impunity. Alarmist claims of risk can be made and disseminated without adequate scientific research into the actual probabilities of harm. If, as often happens in the non-risk society, their claims are widely accepted, then the targeted industry is forced either to ignore the claims and face a sharp drop in demand, increased lobbying, and increased regulation or to attempt to refute them. As many industries have discovered to their cost, refuting such claims is a long, tedious, and expensive process that can involve commissioning expensive consultancy and research. Scare-mongering is easy; countering such claims is expensive and difficult. For those wishing to harass and discredit an industry, a drip-feed of sensationalist stories of unanticipated risks or environmental damage is a sure-fire winner.

Activists are also drawn to exaggerate because risk is news while safety is not. A well-crafted scare story is almost guaranteed media coverage by journalists who are themselves prone to sensationalize in order to make the front page. Industries thus face the problem of having to counter risk-stories, often with as little research on the issue as their accusers. Even if the industry responds immediately to the resultant public outcry by commissioning scientific research into the alleged risks, it has to wait for many months or even years for the results. When the research finds the allegations of risk to have been inaccurate, companies commonly find that the media are simply not interested. Risk stories are in tune with our "culture of fear" (Furedi, 1997); stories about safety have little appeal. Journalists and editors know this and so scientific refutations of wild and one-sided allegations usually remain enclosed within the covers of scientific journals. Anyway, by this time, the allegations will have usually changed.

## A typology of anti-industry devices

Through the study of attacks on industrial products and processes, and subsequent public alarms about them, it is possible to identify patterns in the methods used in scare-mongering. Through an analysis of over 50 such scares, our on-going study has found that activists routinely use a combination of one or more devices or stratagems in order to exploit public anxieties and exert pressure for regulation or bans. Our categorization of these devices has been confirmed by journalists, who themselves are experts in "spin," and by those in industry who have to deal with such devices on a regular basis (Neal and Davies 1998: 38–41).

### *(1) Initial exaggeration of hazard*

Exaggeration gets headlines. Even when claims are later reduced or abandoned, the original impression will remain. Later evidence that

challenges or disproves exaggerated and alarmist claims tends to get less media coverage than the original irresponsible allegation. Some examples are:

- the alleged dangers of infant's formula baby milk
- Greenpeace's assessment of the oil in Shell's Brent Spar rig
- the risk of diet-related disease
- the risk from drinking alcohol
- the scare about Alar (a growth hormone) sprayed on apples
- the presence of asbestos in schools
- the controversies over calcium channel blockers.

***(2) The cluster controversy***

When cases of a disease or problem are found "clustered" in one particular place, this is identified as abnormal or suspicious. In reality, distributions are nearly always irregular for clusters occur naturally and spontaneously. They are not in themselves evidence of a health or environmental "problem." Two examples are:

- leukaemia and other cancer clusters around nuclear plants or military installations
- scares over electrical transmission wires and cancer.

***(3) Coincidence equals causality***

The coincidence of a particular "risk" factor with a negative health or environmental outcome is often treated as hard evidence of a causal relationship. Two examples are:

- scares over drugs like Opren, Nifedipine and other calcium channel blockers
- scares over Prozac.

***(4) Stressing relative risks while ignoring absolute risks***

The absolute chance of suffering harm from many hazards is very low. This awkward fact can be concealed by playing up the relative risk and showing that those who use a product are *x* times more likely to suffer harm that those who do not. This sounds impressive and makes good headlines. The actual absolute chances of harm remain very low, but that is rarely mentioned, for low absolute risks do not make good headlines. Some examples are:

- environmental tobacco smoke
- various scares about contraceptive pills
- toxic-shock syndrome and tampons
- calcium channel blockers.

***(5) Denial of dosage***

It is often argued that because large amounts of *x* are dangerous, small amounts must also be harmful, though on a smaller scale. In fact, large amounts of anything tend to be dangerous and small amounts of a substance that is toxic in large doses can often be safe and even beneficial. Some examples:

- agrochemicals
- residues from pesticides and weedicides
- water quality
- artificial sweeteners
- asbestos
- food additives
- radiation.

***(6) Devices with words and images.***

Such devices include the use of the familiar "Up to as many as 20 million people may be at risk of . . ."; the use of doctored photographs to shock; the cutting out of the "ifs" and "buts" normally associated with science; the portrayal of consumers as naive innocents, companies as malign conspiracies, and health and environmental activists as selfless heroes; and the artful suggestion that all things new are risky and the old and familiar are safe. Some examples are:

- anti-biotechnology scares
- Brent Spar drilling rig
- assorted anti-pharmaceutical scares
- anti-meat campaigns
- campaigns against hunting
- campaigns against nuclear power.

***(7) Harm minimization that ignores pleasure, benefit and convenience***

Many products can be harmful for some consumers or even third parties. It is not however, legitimate to add up these costs as part of an indictment while ignoring the pleasure and benefits for which they are purchased and used. A low-risk world is not necessarily an optimal one and harm minimization can lead to tedium and misery. Some examples are:

- alcohol
- tobacco
- automobiles
- fireworks
- "unhealthy" foods
- irradiated foods
- T-bone steaks
- campaigns against roads.

***(8) Claiming a false consensus***

Scientists often disagree. This is inconvenient for activists. The device used to get around this is to cite sources selectively so as to suggest that a consensus of scientific opinion exists. Alternatively, a collection of old studies can be added together to create a new collective "meta-study." Sometimes, the statistics from the individual studies are illicitly added together to create a big and impressive pseudo-sample. Some examples are:

- passive smoking
- the extent to which man's activity is responsible for global warming and for the hole in the ozone layer, and what the consequences are likely to be
- the severity of acid rain and the degree of harm it causes
- what the "healthy diet" is.

***(9) Appeal to nature and purity***

Nature is portrayed as being benign even though untamed nature has been the greatest threat to the human race. Environmentalists and healthists alike use the sentimental appeal of the natural as good and the artificial as bad. Some examples are:

- infant's formula baby milk
- campaigns against agro-chemicals
- food irraditation
- silicone breast implants
- nuclear power
- pharmaceuticals
- artificial sweeteners
- protests against roads and runways
- Brent Spar drilling rig
- biotechnology
- food additives.

***(10) Sentimentalizing the victims: protecting innocent children.***

Activists divide the world into innocent consumers and bystanders, on the one hand, and greedy corporations, on the other. The most innocent of all are children and the most powerful rhetoric asks that they be protected. In real life, children need to learn incrementally to take risks and exercise judgement as they grow older. Some examples are:

- environmental tobacco smoke
- infant's formula baby milk
- hand guns
- computer games
- snack foods
- toys
- fireworks
- food additives.

***(11) Omitting the costs and dangers of regulation***

Those who want products regulated stress the dangers of the product but are rarely able to show that the regulation will work as intended. Nor do they investigate or measure any costs the regulation may have, such as their impact on employment. The costs and dangers of regulation are simply ignored. Some examples are:

- alcohol
- pharmaceuticals
- meat industry
- eggs
- biotechnology.

***(12) Demanding the impossible***

After a product has been shown not to be unsafe, the activist demands that it be proven to be safe. In reality, the best that can be proved is a low level of risk. Activists, however, demand a perfect solution when, in the real world, of necessity we have to choose between solutions offering different patterns of costs and benefits, none of which is perfect. Activists may even rule out the least costly and least harmful of these because they insist that it is necessary to adhere to some irrational absolute criterion. Some examples are:

- silicone breast implants
- pharmaceuticals
- Brent Spar drilling rig
- biotechnology
- nuclear power stations.

These kinds of devices can be spotted in the media most weeks of the year. One would think, perhaps, that alerting journalists and broadcasters to these devices would encourage them to be more critical in their coverage of stories about risk. When talking to such journalists, however, it becomes obvious that they are fully aware of the "spin" put on statements and press-releases. Journalists operate in a story market. The current risk-averse, death-denying culture means that there is strong demand for scare stories, particularly about mundane household products.

The stories are also widely believed. In the non-risk society, identifying and eliminating dangers are self-evidently noble acts in the moral crusade to eliminate premature illness and death. The activists, the press, and the public are all much more interested in harm than in benefits; thus, the overriding fact that the effects of industrial activity on general welfare are overwhelmingly beneficial is rarely reported.

On the contrary, industry is almost always cast in the role of the villain. This is not surprising as the reputation of industry as a whole continues to suffer from the legacy of Thalidomide, asbestos, and to-

bacco. Likewise, it has suffered greatly at the hands of anti-industry groups like Greenpeace, and of public-service television programs like *Watchdog*. Many people do not trust industry to tell the truth, whereas they continue to trust and support anti-risk and anti-industry activists.

This pattern of trust and mistrust is one of the most bizarre and damaging features of the modern industrial scene. On the one hand, people continue to trust anti-risk activists regardless of their poor record and their reckless behaviour. People continue to believe anti-industry scares though the majority have been proved to be groundless or exaggerated. On the other hand, they continue to mistrust industry, particularly when it responds to activist attacks. The vision is still of brave, principled, little people taking on the might of the greedy multinationals.

There is a strong argument that, if one is pursuing the truth about risk, the pattern of trust should be reversed. Unconstrained by responsibilities or hard science, activists are able to make wild statements. For sure, they often couch them in sober language and use one or many of the devices outlined above to conceal the flimsiness of their arguments. Their claims should, however, be met with extreme scepticism.

Of course, the same is true of industry rebuttals to such claims although, in practice, industry statements are more likely to be true because their every word is put on record, monitored, and criticized by their enemies. If a company produces data on risk or damage to the environment that is patently wrong or mendacious, it would be quickly spotted by the expert regulators or scientifically trained activists and used to discredit them. The risks industry runs by lying or by pushing junk science are prohibitively high.

The corresponding risks for activists are low: many of their claims are pseudo-scientific in the sense that they are untestable and, therefore, cannot be refuted. If a company does decide to sue over a risk claim, public credence and sympathy lie automatically with the health and safety bravados. Finally, if an industry does spend the time and money to research its claims, the activists can continue to push the lie for a while—then, they can change the accusation.

The attractions of anti-industry activism are obvious. Unlike most of us who have to muddle along in a world of compromise, actvists live in a world of black and white, good and evil, safe and unsafe, eco-friendly and environmentally damaging. They have dragons to slay—industrial monsters that threaten the world. Saving people's lives and saving the planet are impressive crusades that confer a sense of self-worth. The self-evident nobility of their cause means that they do not have to consider trivial details like the costs of regulations, the shut-down of industries and the families that rely upon them for their livelihood. They do not have to consider people of modest means who have

to pay more for altered or alternative products. These are prices worth paying for a natural world where premature death is banished, a pure world, unsullied by the compromises of cost-benefit analyses.

In addition, the activists themselves are safe. The development of non-risk culture means that anti-industry activism will continue to attract recruits.

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