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**A CRITICAL ANALYSIS OF THE REGULATION OF
WORKPLACE HEALTH
HAZARDS IN NEW ZEALAND**

**A THESIS PRESENTED IN PARTIAL FUFILMENT OF
THE REQUIREMENTS FOR THE DEGREE OF
DOCTOR OF PHILOSOPHY**

at

MASSEY UNIVERSITY

IAN BARCLAY CAMPBELL

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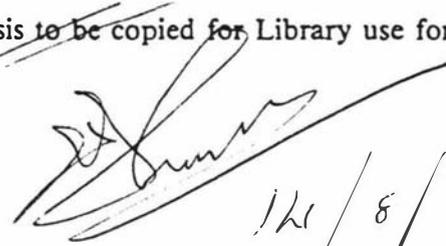
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ABSTRACT

This thesis is concerned with the health problems of the working environment and looks at ways in which these problems may be better controlled by regulation. After considering the historical background, the nature and extent of those problems, they are examined and their source established. Their real extent is unknown and probably much greater than generally appreciated but there is a dearth of reliable data and available statistics. There are thus many instances where the work connection of a disease may be strongly suspected but proof is lacking.

The considerable research undertaken overseas has been examined and it emerges that the effectiveness of regulation is often far from certain with some disappointing results evident from some studies. The current trend to greater self-regulation also brings with it conflict and misunderstanding. The consensus is that though a great deal more must be done within the individual workplace, that does not remove the need for an effective well-resourced enforcement agency ensuring that industry complies with the statutes, regulations and codes of practice. Recognising the limits to the impact the enforcers are able to make and the fact that many injury and disease-provoking situations are not subject to regulation, there is a need for the total workforce to be involved in a positive and informed way. This may be aided by more formal methods with the establishment of joint management-labour health and safety committees and the appointment of workers' health and safety representatives or encouraging the less formal participation of the total workforce.

It is considered that only by the introduction of a participative approach, can the management of health and safety proceed beyond mere compliance with the law, an objective necessary to ensure the most effective influence. Regrettably there still remains considerable reluctance on the part of many managements to accept that view. It is suggested that reasons for this lie in a lack of a true understanding of causation combined with a tendency to blame the victim.

The link between prevention and compensation is also considered. If too demanding standard of proof is required to establish a compensation claim, it is highly likely that preventive measures will not be instituted. The problem of proof raises many difficulties but a compensation authority should approach its task in an investigative manner giving all possible help to the claimant. There is a clear need for a more informed workforce, management and inspectorate. This and better control of hazardous substances and the exposure thereto, will be much improved if a small but well resourced National

Institute of Public Health is established. As hazardous substances are the product of industry, being not only used in industry but also in the wider environment, it is illogical to have a separate Hazards Control Commission as provided in the Resource Management Act 1991.

Of all the measures suggested, possibly the most important would be the intensification of the participative approach embodying adequate education and training. This calls for a change in the stance of many managements and a move to ensuring that workers and managers can negotiate on equal terms; in today's buzz words, on the much vaunted level playing field.

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PREFACE

Early acquaintance with Workers' Compensation claims first drew my attention to the problem of prevention and a visit to the BHP steel works and other allied industries in Newcastle, New South Wales in 1937 served to focus my attention on this topic more sharply. Later, during my 22 years with the Workers' Compensation Board, being also closely involved with its sponsored organisation, the National Safety Association, and subsequently as Director of Safety of the Accident Compensation Commission (as ACC was then), this focus remained. However in those days the emphasis was almost entirely on accidents and injury prevention. Fortunately, through the friendship of a small number of dedicated occupational health physicians both in the Department of Health, medical schools and in private practice, the importance of the health problems of the working environment became firmly imprinted on my mind. Inevitably many personal experiences over the intervening years have also been woven into the fabric of this thesis.

Regrettably, even after Dr Bill Glass published his excellent manual in 1974 *People at Work: their health, safety and welfare*, it was still difficult to get the Accident Compensation Commission (now Corporation) (ACC) field staff to give more attention those health problems. The ACC Commissioners were likewise unappreciative of the extent of the problem. It was not until 1979 when assisting in developing the Massey Diploma in Safety Management that I was able to begin to make some impact.

A difficult problem with work-related illness has always been proving that an illness was indeed work-related and, if so, in which particular employment the offending exposure occurred. While that may be unfortunate for the prospective compensation claimant unable to provide such proof, it is also equally likely that lack of proof would also preclude the possibility of any preventive action being instigated. With this in mind I prepared a draft paper and among those to whom I gave it to evaluate was Fred Gerbic MP, then Opposition spokesman on Accident Compensation. Shortly after, the 1984 Election occurred. The Associate Minister of Labour, to whom Mr Gerbic had passed the draft, advised me that he, in turn, had given the paper to ACC seeking their views. Within a week I had a lengthy reply from the Minister of Labour, reflecting a little interest in my views on the compensation aspects but making no comment about the all-important prevention issue. Subsequently, that paper slightly amended was published in the *New Zealand Journal of Industrial Relations*.¹ Without the rejection of the

¹ Campbell, I B, Occupationally related illness: its compensation and its prevention, (1985) 10 NZ *Journal of Industrial Relations*, 1-14.

suggestion of the important link between compensation and prevention, this thesis may never have been written.

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LIST OF ABBREVIATIONS

AC	Appeal Cases (UK)
ACC	Accident Compensation Commission (to 31/12/1980) Accident Compensation Corporation (from 1/1/1981)
ACGIH	American Conference of Government Industrial Hygienists
ACOSH	Advisory Committee on Safety and Health
ALJR	Australian Law Journal Reports
All ER	All England Reports
CLR	Commonwealth Law Reports (Australia)
CPSC	Consumer Products Safety Commission (US)
EC	European Community
EPA	Environmental Protection Agency (US)
F	Federal Reporter (United States)
FDA	Food and Drug Administration (US)
HSC	Health and Safety Commission (UK).
HSE	Health and Safety Executive (UK).
ILO	International Labour Organisation
IRLG	Interagency Regulatory Liaison Group (US)
KB	King's Bench Reports (England)
M & W	Meeson & Welsby's Reports
MAC	Maximum allowable concentrations
MCD	Magistrates Court Decisions (NZ)
MMMF	Man-made mineral fibres
NE	North Eastern Reporter (United States)
NIOSH	National Institute of Occupational Safety and Health (USA)
NZACR	New Zealand Accident Compensation Cases
NZAR	New Zealand Administration Reports
NZLR	New Zealand Law Reports
OEL	Occupational exposure limits
OSH	Occupational Safety and Health
OSHA	Occupational Safety and Health Act Occupational Safety and Health Administration
QB	Queen's Bench Reports (England)
SANZ	Standards Association of NZ
SC	Session Cases (Scotland)
SRSCR	Safety Representatives and Safety Committees Regulations (UK)
TELARC	Testing Laboratory Registration Council
TLV	Threshold limit value
US	United States Supreme Court Reports
WHO	World Health Organisation

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GLOSSARY

- ACC:** Accident Compensation Commission (to 31/12/80)
Accident Compensation Corporation (from 1/1/81)
- ANGIOSARCOMA:** A cancer of the liver linked with exposure to vinyl chloride.
- ASBESTOSIS:** A form of pneumoconiosis caused by the inhalation of asbestos dust
- BRUCELLOSIS:** A remittent febrile disease caused by infection with bacteria of the genus *brucella* Spreads from animal to man or animal to animal but rarely from man to man.
- CARCINOGEN:** Any cancer producing substance or agent.
- CARRIER:** An American term for an insurance company.
- COHORT STUDIES** Involve the study of a group of individuals over time. They may be prospective or retrospective when it is possible to identify a group in the past and study their history up to the present.
- HAZARD** has been defined as the potential in an activity (or condition or situation) for sequence(s) of errors, oversight, changes and stresses to result in an accident causing personal injury, death, property damage, disease, or other detriment to the enterprise; a source of risk or peril.
- IDIOPATHIC DISEASE:** A primary disease; one not the result of any other disease but of spontaneous origin,
- IN VITRO:** In glass; referring to a process carried out in a test tube, culture dish, etc.
- IN VIVO:** In the living organism.
- LEPTOSPIROSIS:** A disease which can be transmitted from animals being a feverish type of illness characterised by headaches, malaise, vomiting muscular aches, etc. There are many types though in New Zealand only 6 have been identified.
- MESOTHELIOMA:** A cancer of the membrane lining of the abdomen or chest.
- MUTAGEN:** An agent that causes a process whereby detectable and heritable changes in genetic material arise.
- NONIDIOPATHIC DISEASE:** A disease having a definite start time point established by evidence which may include those which traumatic in origin.
- OOS:** Occupational overuse syndrome
- PHTHISIS:** 1. An old term for tuberculosis, especially pulmonary tuberculosis.
2. Old term for any disease characterized by emaciation and loss of strength, especially diseases of the lungs. Miner's Phthisis was defined in s 47 of the Social Security Act 1964 as meaning: pneumoconiosis or tuberculosis of the lungs.
- PNEUMOCONIOSIS:** Includes tuberculosis of the lungs, any other disease of the respiratory organs commonly associated with or a sequel to pneumoconiosis.
- RISK:** Mathematically; expected loss; the probability of an accident multiplied by the quantified consequence of the event caused by the hazard.
- RSI** Repetitive strain injury or occupational overuse syndrome.

- SYNERGISM:** The combined effect of two agents such as the exposure of workers to asbestos who also smoke.
- TERATOGEN:** An agent or factor which causes malformation in the developing embryo.
- ZOONOSES:** Parasitic diseases which are transmissible under natural conditions between vertebrate animals and man and may be found in both wild and domestic animals.

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PART I

INTRODUCTION

CHAPTER 1

INTRODUCTION

Occupational disease is not a glamorous subject. It does not grip national attention and command lead stories on the evening news as did, for instance, the tragedy in Bhopal, India. Although the public is eager for news about disasters, it seems to prefer those that are quick, dramatic, and comprehensible. Occupational diseases rarely fit that description.¹

This thesis is concerned with health hazards at work. The principal question it attempts to answer is how can occupational health and safety legislation reduce those hazards more effectively. Ideally such legislation should not only involve regulation but also give encouragement to greater development of the internal responsibility system of each individual organisation. The problem is more difficult than that posed by work-related injuries for while some health hazards are well recognised, there are many more chemicals, substances, processes and activities that may cause or are suspected of causing health problems but for which there is a lack of clear proof. Then there is the need to determine the best method by which improved preventive or ameliorative measures could be put into effect.

As Schroeder points out a major difficulty lies in getting a better appreciation of the problem. The expected death of several hundred thousand over the next few years as a result of exposure to asbestos has received little attention, for example. In all the discussion that has attended Accident Compensation in recent years, there has been great emphasis on costs, levy rates, prisoners getting compensation after injuring themselves in an escape attempt, claimants ripping off the system, Rugby injuries, etc but little mention of the need for more activity on the prevention front.

Nichols in a examination of recent developments in Great Britain following the introduction of the Health and Safety at Work Etc Act 1974, puts it quite unequivocally:

¹ Schroeder, E P, Legislative and Judicial Responses to the Inadequacy of Compensation for Occupational Disease, (1986) 49 *Law & Contemporary Problems* 151-182, 151.

... safety is not health. Nothing can be concluded about occupational health on the basis of the evidence that has been considered here on industrial injuries.²

Though a great deal of the research and other factors concerned with safety that are relevant to the health effects, there is much that is not.

All regulation has its limitations; deficiencies either inherent in its structure, such as the extent of its application, or in the efficacy and integrity of its administration. Though some shortcomings may be difficult to overcome and a few, even impossible, nevertheless these difficulties should not deter those seeking to lessen the many adverse health effects of the working environment. The key question is, what are the improvements or new approaches that could be implemented to make regulation more effective and thereby to enhance health?

Logically the first task is determining the existence and extent of health effects of work and the numerous hazards, along with assessing the limitations of current regulation. Only then will it be possible to attempt to establish changes that could lead to more effective control of health hazards in the future. Considerable debate has revolved round the style of enforcement. Should the inspectorate expand its role in informing, advising and persuading? On the other hand, should it seek more relentlessly, the imposition of penalties for failure to comply?

Then too there is the problem of assessing the response to any regulatory measure. On the one hand, judging the effectiveness of compliance with the guarding requirements for machinery, for example, is a fairly straightforward task. On the other, determining the extent of compliance with the control measures for a chemical hazard can be a task of some complexity; even more so is the problem of determining the real effect on health.

² Nichols, T, *Industrial Safety in Britain and the 1974 Health and Safety at Work Act: the Case of Manufacturing*, (1990) 18 *International Journal of the Sociology of the Law* 317-342, 336.

1.1 BACKGROUND

In recent years there has developed a growing awareness of the hazards to health that are to be found in the environment. Calls for stricter control of many substances and even the prohibition of some, have been forcefully advocated by environmentalists. In some cases there has been little opposition to steps being taken by national authorities but in other instances there has been violent opposition to proposed controls.

Regulation too, has been attracting increased opposition and additionally calls for more deregulation are to be heard. Much that can be done to improve matters can only be accomplished at considerable cost and this too can be a cause for dissension, for today, all organisations, both the public and private, are forced to monitor expenditure closely. However in many cases it is a matter of reorganisation of the management system rather than incurring considerable expenditure. There is though an inherent conflict between those who advocate stricter regulation and others whose opposition is founded on the increased costs the regulations will entail. However the latter view also ignores the costs of failing to reduce the incidence of work-related disease.

Following World War 2, industry began to give some attention to preventive measures beyond the requirements of regulations and for some years the emphasis was almost entirely on accidents and injury prevention.³ Mendeloff reported that, in the United States "both labour and management leaders agreed that health hazards, not safety hazards, presented the strongest case for government action." After he added that "the overwhelming bulk of inspections and violations have dealt with safety, not health."⁴ In the last three decades, the health hazards of the working environment, have been gradually gaining attention. Asbestos-related fatalities are one example of a problem that has awakened some public interest, heightened by a graphic TV film which has been widely screened concerning one unfortunate victim; a woman named Alice.

Wilson makes an interesting comment on the British scene confirming Nichols view quoted on p 3:

3 Ashford, N A, *Crisis in the Workplace: Occupational Disease and Injury, A Report to the Ford Foundation* (1976) Cambridge MA: MIT Press, 9.

4 Mendeloff, J, *Regulating Safety: An Economic and Political Analysis of Occupational Safety and Health Policy*, (1979) Cambridge MA: MIT Press, 41.

... the British should also be modest about their achievements in the field of occupational health. ... occupational health involves different issues from occupational safety and is far more important. We cannot infer from the degree of success or failure of a nation in combating industrial injury its success or failure in combating occupational ill-health.⁵

As industry and the wider community begins to cope with one hazardous substance, either by abandoning or regulating its use, other problems may arise. Thus following the limitation of the widespread use of asbestos, concerns are now beginning to surface about some of the substitutes, the man-made mineral fibres.

It is clear that the problems of the health hazards of the workplace and, indeed, the total environment are substantial and constantly being added to. Furthermore there is now an increasing number of persons or organisations who do not hesitate to raise such fears about all manner of substances, even occasionally on very spurious grounds.⁶ Thus it is also necessary to refrain from rousing unnecessary alarm. However balancing the conflicting views, often with quite inadequate data, presents a challenge of some magnitude. To expect a government authority to clear any new chemical or substance before use is clearly impracticable for the necessary resources are not available. Thus a substantial responsibility rests initially on the manufacturer.

While increasing attention is being devoted to the growth of technology, there are also other factors demanding consideration. Work itself is changing with many traditional jobs being phased out, and new ones often bringing new problems. For example, the greater number of women in the workforce in some occupations increases the spectre of hazards to the reproductive system. Who would have envisaged thirty or more years ago, that we would now be concerned with health problems in the ordinary office; previously thought to be, and mostly was, the most benign of environments. Today we have repetitive strain injury (RSI) or occupational overuse syndrome (OOS), suspected radiation from video screens and other electronic equipment, solvents and ozone in copying and other machines, sick building syndrome, etc.

⁵ Wilson, G K, *The Politics of Safety and Health: Occupational Safety and Health in US and Britain*, (1985) Oxford: Clarendon, 168.

⁶ Crawford, R, *Cancer and Corporations*, (1981) 18 (3) *Society*, 18-27, 21.

Improvement in the technology of detecting minute traces of toxins in the environment, also brings further dilemmas. The minute traces of a very toxic substance like dioxin in products as mundane as milk cartons or toilet paper, tends to raise public concern, sometimes even to the point of scaremongering. In some instances the contaminant may be a general environmental problem as well as a workplace one. Asbestos dust from deteriorating insulation in buildings such as schools caused considerable concern in North America a few years ago. Here in New Zealand until very recently the same problem has raised less public concern but, as a result of industrial action, it did cause New Zealand Railways to abandon its prestigious Silver Star train due to the presence of blue asbestos (crocidolite) insulation.

Despite acknowledgement of the need for improved health standards, yet in the United States, over the years since Occupational Safety and Health Act of 1970 (OSHA) was passed, by far the bulk of the standards promulgated and the inspections undertaken were with respect to safety aspects. Mendeloff explained that one important reason why health concerns did not claim much attention was:

... that a large segment of the occupational health problem does not readily lend itself to solution by enforcement. To discover that diseases are occurring and then unravel the causes requires research, not enforcement. In addition, violations of safety standards were simply more prevalent than violations of health standards, a situation that had been guaranteed by the mass adoption of the consensus [safety] standards.⁷

Reflecting a British point of view Stapleton in discussing compensation and the tort remedy argues that:

... serious distortions underlie this debate because of its tendency to focus on accidents and to neglect issues raised by other types of personal injury which cannot be unequivocally pinpointed to a certain time or place ...⁸

Small wonder that Weiler in his initial report to the Ontario Provincial Government on Workers' Compensation stated:

Industrial disease bids fair to be the major battleground of the next decade, exposing serious questions about the future viability of Workers' Compensation.⁹

7 Mendeloff (1979) 41.

8 Stapleton, J, *Disease and the Compensation Debate*, (1986) Oxford: Clarendon, 1.

9 Weiler, P, *Reshaping Workers' Compensation for Ontario*, A Report submitted to the Minister of Labour, (1980) 157.

These last two comments give some indication of the task that lies ahead.

From the beginning of occupational health and safety legislation, New Zealand has been influenced almost solely by British legislation. Strangely, what could be considered as international standards, the conventions adopted by the International Labour Organisation (ILO), have not attracted much action here. The advent of the European Community has also given rise to the desire for a more unified approach among its members, an approach which is not without influence in the deliberations of ILO. This is elaborated upon in Chapter 5.

What then could legislation better achieve? A first step would be an improved identification of the hazards as an essential to their more effective control if not elimination. The inadequacy of our knowledge of this complex issue points to the need for a great deal more education. There are many approaches which we could well emulate, for example the British *Control of Substances Hazardous to Health Regulations 1988*. Demanding though those regulations may be, they are a clear indicator of the seriousness of the problem faced and the extent of the necessary action needed. This is discussed later in Chapter 13.

The presence of adequate regulation alone will not provide a complete answer, though the extent to which it can be enforced is a key issue. Even accepting that there can be good regulations, well enforced, consideration has still to be given to other factors, such as the obvious limitations to even the best of enforcement systems and the hazards which are not subject to any regulation. For the latter, as with so many problems, is the best defence sound management with good systems and a well-trained and informed workforce appreciative of the benefits of uncontaminated air and water?

However there is more to the health aspects of the workplace than merely contending with its health hazards. Accepting the importance of good health and its effect on the ability to perform one's task efficiently, an adequate occupational health service can help to maintain the general wellness of the workforce. Until relatively recently occupational health has had a fairly low profile in the health care system.¹⁰ In the last four decades there has been a substantial growth in the occupational health services to be found in many of the larger industrial units and in centralized services provided for areas of

10 Malcolmson, P E, *Occupational Health: An Ontario Perspective*, (1982) 3 *Occupational Health in Ontario*, 186-217, 217.

substantial industrial concentration. Unfortunately, as Glass has pointed out, more recently many of these services have closed down.¹¹ This predates the present economic downturn which has served to accelerate the process of decline. Clearly when economies are called for, occupational health has a lower priority.

1.2 CONCEPTS OF SAFETY

It is easy to accept that, in most situations, there can be no such thing as absolute safety and therefore one has to decide what level of risk is acceptable. Lowrance somewhat simplistically stated that "... a thing is safe if its attendant risks are judged to be acceptable."¹² But that leaves wide open the question as to who makes that judgement. Is it the manufacturer who may incur considerable expense in making his plant both healthier and safer or will it be the workers who face the risks or should such a decision call for intervention by a public agency.

Assessment of risk involves at least two dimensions -- probability of harm -- and, if harm does eventuate -- the likely extent of that harm. A reasonable assessment of the total risk, both probability and consequence, is clearly necessary if a sound judgement is to be made. Unfortunately, the credibility of such assessments especially where health factors are an issue, often remains annoyingly elusive, despite any authoritative testimony or scientific research. Then there is the problem of the substances where any adverse effect may only become evident long after the initial exposure.

Whether or not authority responds to the presence of a particular hazard may be influenced by the public's perception of that risk. Unfortunately that influence may be far from an accurate reflection of true hazard. Among the confounding factors could be the publicity generated by the media, or lack of publicity, whether there are few events involving many or large numbers of victims but widely distributed in time and place or one event involving many. Occupationally-related death, disease and injury rarely attract attention unless of dramatic proportions or involve members of the public such as the collapse of the scaffolding on the DIC building in 1957.¹³

11 Glass, W I, Dr Tom Garland -- a pioneer in occupational health, (1989) 182 *NZ Medical Journal*, 109-110.

12 Lowrance, W W, *Of Acceptable Risk* (1976) Los Altos: Kaufmann, 70.

13 *Report of the Royal Commission to inquire into and report on the cause of the accident which occurred to the scaffolding on the DIC Building on 8 May 1957*: (1957) H 49, Wellington: Govt Printer.

If it is agreed that, in large measure, there cannot be absolute safety, we must consider the level of risk that is deemed "acceptable" and also the cost of any proposed countermeasures. In the work environment that may mean a level of exposure to a contaminant that will do the least harm consistent with its utility. Hopefully that would be a level that is unlikely to cause serious injury to the workers so exposed -- the threshold that may be accepted. A difficult question as witness the view of a judge of the United States Supreme Court who, while avoiding stating what could be regarded as a significant level of cancer risk justifying a regulation limiting exposure, suggests:

If, for example, the odds are one in a billion that a person will die from cancer by taking a drink of chlorinated water, the risk clearly could not be considered significant. On the other hand, if the odds are one in a thousand that regular inhalation of gasoline vapours that are 2% benzene will be fatal, a reasonable person might well consider the risk significant and take appropriate steps to decrease or eliminate it.¹⁴

However as Shapiro and McGarity comment,

Justice Stevens did not understand, however, that both the probability of contracting a disease and the number of persons at risk must be considered.¹⁵

Shapiro and McGarity then point out that, taking into account the numbers exposed, the total estimated deaths in a year would be very similar for the total risk is the product of the numbers at risk and the probability of harm.

To a degree it can be a matter of ethics when the lives of individuals are at risk as Gewirth explains. Costs and benefits alone are, however, not the only question to be considered. In a thought-provoking paper dealing with the prevention of cancer, Gewirth makes a number of pertinent comments. He maintains that where it is known that substances in use are causally related to cancer, then exposure to those substances must be prohibited or at least carefully regulated and additionally, that every effort must be made to get the relevant knowledge and publicise it. Thus where manufacturers, importers and sellers of such substances do nothing to stop or curtail their use or marketing, they can be morally and causally held responsible for any cancers which may thus be inflicted. He concludes:

¹⁴ *Industrial Union Department AFL-CIO v American Petroleum Institute (Benzene)* per Justice Stevens, 448 US 607 (1980) 65 L Ed 2nd 1010, 1043.

¹⁵ Shapiro, S A, & McGarity, T O, Reorienting OSHA: Regulatory Alternatives and Legislative Reform, (1989) 6 *Yale Journal on Regulation*, 1-63, 46.

So far as the moral responsibility of agents is concerned, the Right to the Non-infliction of Cancer is an absolute human right, and it requires the most determined efforts both to ascertain when such infliction is likely to occur and to take all possible steps to prevent it, and thereby to make its respondents fulfil its correlative duties.¹⁶

It is suggested that Gewirth is concerned with hazards with the potential to inflict great harm for there will be cases where the possibility of harm is so remote that it would be unreasonable to institute drastic controls or even ban the substance. In Chapter 12 the limitations of applying a cost-benefit analysis are discussed.

Yet there is evidence that, at times, information on the toxicity of the substance that workers have been asked to use has been deliberately withheld. Benson in his examination of the VIC RAIL asbestos dispute demonstrates how such issues cannot be left to management or the government and illustrates the need for workers and union officials to be involved in assessing the dangers present.¹⁷ The prosecution of the owners of a silver recovery plant referred to on p 212 is another example.

In the search for indicators to which the regulators look for guidance, ethical considerations could also enter into the relationship between management and labour. In a Canadian study prepared for an Ontario Royal Commission, two perspectives were considered -- utilitarian and Kantian. The study concludes:

A utilitarian perspective would, much like the economic framework, subject issues of safety and risk to a kind of social cost-benefit analysis. Are more social benefits derived from a given level of safety and risk than the social costs imposed on the risk bearers? A Kantian perspective would, on the other hand, stress the paramount ethical value placed on individual autonomy and the importance of not threatening that autonomy by subjecting individuals to risks to life and health that jeopardize their prospects of living in a dignified and fulfilling way. While all risks to life cannot be eliminated in any society, at least the burden of them should not be disproportionately distributed. A widely participatory and

16 Gewirth, A, Human Rights and the Prevention of Cancer, (1980) 17 *American Philosophical Quarterly*, 112-5, 115.

17 Benson, J, Union Involvement in Health issues: The VIC RAIL Asbestos Dispute, (1981) 6 *NZ Journal of Industrial Relations* 57-65.

accessible set of institutional arrangements for determining socially acceptable levels of risk in particular settings seems suggested by the Kantian emphasis on equality in the burdens of risk-bearing.¹⁸

These views, it is suggested, must be given due weight alongside a consideration of any cost-benefit assessment or other examination of the desirability of the need for change. This is especially so when considering issues involving a high degree of hazard such as the use of carcinogens and substances which are strongly suspected of being carcinogens; the greatest challenge in the field of occupational health.

1.3 AIMS OF THE STUDY

As stated, in this thesis we are concerned with a very neglected area; the regulation of the health hazards at workplace. There are a number of important factors that have been recognized as calling for attention such as:

- * Identification of the hazards to health; the source of the problems.
- * The extent of the problem caused by those hazards.
- * The need for more adequate data.
- * Regulatory developments on the international scene .
- * The philosophy of regulation.
- * Establishing the nature of effective regulation.
- * Participation at the workplace.
- * Education and training.
- * The effect of compensation factors
- * Establishing adequate occupational health services.
- * The lessons that can be learned from history.
- * Effective modes of deterrence.

From that examination the objective is then to determine directions where regulation may head to improve its scope and effectiveness.

18 Touhy, C J, & Trebilcock, M J, *Policy Options in the Regulation of Asbestos-related Health Hazards*, (1982) Toronto: Royal Commission on Matters of Health and Safety Arising from the Use of Asbestos in Ontario, 10.5.

PART II

THE HISTORY

CHAPTER 2

AN HISTORICAL SURVEY OF THE REGULATION OF WORKPLACE HEALTH HAZARDS IN NEW ZEALAND

2.1 THE ORIGINAL APPROACHES

Though the first legislation paid minimal attention to the health hazards of the workplace as we would view them today, nevertheless it is desirable to consider the first developments in Factories and allied legislation, viewing safety in the wider context. Many significant improvements in legislation have been responses to a disaster. The Inspection of Machinery Act 1874 followed a fatal boiler explosion on the Thames gold field. The first legislation with respect to mines; the Regulation of Mines Act 1874, which, though passed in that year did not come into force until 1879 after the Kaitangata mine disaster when 34 lives were lost. In like fashion the Brunner mine disaster of 1896, when 67 lives were lost, was a powerful influence behind the passing of the Workers' Compensation for Accidents Act 1900.¹ Even more recently the Construction Act 1959 followed an enquiry into the collapse of the DIC scaffolding to which reference has already been made.

On the other hand, health effects of the working environment, lacking any focal event, have not aroused any notable call for action in New Zealand, as may be contrasted with the number of Canadian Royal Commissions.^{2,3,4,5} The difference is that in no way could our approach be considered as a prompt response to a known problem of considerable potential for harm even accepting that its true extent is unknown. Probably the most widely expressed concern has been for the dangers of the widespread use of agricultural chemicals to the workers, the public and the environment. Yet even that

1 Seddon, Rt Hon R J, (1899) 110 New Zealand Parliamentary Debates 233.

2 *Report of the Royal Commission on the Health and Safety of Workers in Mines*, (The Ham Report), (1976) Toronto: Ministry of the Attorney General,

3 *Workplace Pollution, Working Paper 53* (1986) Ottawa: Law Reform Commission of Canada,

4 *Report of the Royal Commission on Matters of Health and Safety Arising from the Use of Asbestos in Ontario*, (1984) Toronto: Ministry of the Attorney General.

5 Comité d'étude sur la salubrité dans l'industrie de l'amianté [asbestos], *Rapport final* (Beaudry Report), (1976) Québec City: éditeur officiel du Québec.

has been muted, no doubt due to the absence of positive proof of harm. As a Ministerial Committee of Inquiry reported:

The Committee knows of no scientifically acceptable evidence that dioxin or 2,4,5-T itself in minimal doses over many years has produced any ill effect on human health.⁶

The Committee then repeated a statement from their 1986 study concerning the effect of prolonged chronic exposure. Though that was still under investigation "the fact that the proof of any adverse effect is so difficult to obtain even after 30 years of use indicates any such effect must be subtle rather than (sic) catastrophic."

The earliest concern in New Zealand was for the health of women and children and this led to the Employment of Females Act 1873, the forerunner of the factories legislation. It was a very brief Act dealing solely with the employment of females in factories and work-rooms, with emphasis on the need for ventilation being more concerned with the health effects of work rather than injury. Those early attempts to control abuses had no means of enforcing the requirements. It was not until the 1890's that industrial legislation began to gather momentum for during the previous two decades the economy had been in a very depressed state. That shift began with the election of the Liberal Government in 1890 when a decade of change began. Just before then however, there had been considerable public debate about the conditions in which women and children worked, aroused by a Dunedin clergyman; the Rev Rutherford Waddell.

Early in 1888 the appalling working conditions of the Dunedin seamstresses attracted his notice and he preached a fiery and outspoken sermon on "The Sin of Cheapness." *The Otago Daily Times* took up the matter, and its capable reporter, Silas Spragg, conducted investigations which more than confirmed Waddell's allegations.⁷

As a result of the interest aroused by these disclosures a Royal Commission was established. The Commission, of which Waddell was a member, was popularly known as the Sweating Commission and its recommendations led to the passing of the Factories Act 1891. That Act was based on Victorian legislation of 1885 as well as earlier British legislation; the Factories and Workshops Act 1878. That, however, did not allay the political opposition at the time. For example, when speaking in the New Zealand Legislative Council on that Bill, the Hon. Sir George Whitmore said:

This Bill, bristling as it does with all sorts of obligations on the employers, bristling as it does with fines for every possible and conceivable thing, bristling as it does with grounds for litigation in a

⁶ Ministerial Committee of Inquiry: Supplementary Report to the Minister of Health, *Possible Health Effects of Manufacture of 2,4,5-T in New Plymouth*, (1987) Wellington: Department of Health, 9.

⁷ Foster, B J, & McLintock, A H, Waddell, Rutherford, *An Encyclopaedia of New Zealand*, Vol 3, (1966) Wellington: Govt Printer, 499.

country which is already overrun with young, speculative lawyers, is likely to prove a curse to the community and to prove destructive to anything like manufacturing industry in the country ... I say this Bill is a great deal worse than the Victorian Act, and will prove to be one of the greatest barriers to the introduction and fostering of manufacturing industries in the colony.⁸

Strangely the debates in both the House of Representatives and the Legislative Council seemed to be quite unconcerned with safety issues, focussing almost entirely on hours of work for women and children and the age at which a child could commence full employment. A considerable part of the Act was devoted to sanitary provisions and much attention was also paid to working hours. Those provisions were extremely important in those days when long fatiguing hours must have increased the likelihood of injuries in addition to any adverse health effects.

Possibly even more astounding, Brooks is able to refer to similar comments made almost 100 years later from opponents to the Victorian Occupational Health and Safety Act 1985, stating that:

... political opponents of the legislation trot out the same gasps of shock, horror and dismay, and the same claims that legislation of this type will bring the particular state's industry to its knees or sending it rushing to relocate in the freer and therefore greener pastures of Queensland.⁹

The 1891 Act established a Bureau of Industries (later the Labour Department). The first secretary of the Bureau was a remarkable man of many talents, Edward Tregear. Howe records that "[i]n the first three months of factory inspection employers were forced to make 913 improvements and alterations."¹⁰ Though by 1896 there were only 4 factory inspectors located in the main centres, there were 159 other unpaid agents being policemen and several clerks of court.¹¹ In general, however, progress was not spectacular. While changes were made in the legislation from time to time, not a great deal was concerned with workers' health as it would be viewed today. A research paper comments on the 1891 Act:

Many of the provisions and much of the phrasing of the 1891 Act was still extant nearly a century later, during the period when the 1946 Factories Act was in effect, and even the

⁸ *New Zealand Parliamentary Debates* (1891) 73, 319.

⁹ Brooks, A, Rethinking Occupational Health and Safety Legislation, (1988) 30 *Journal of Industrial Relations*, 347-362, 347.

¹⁰ Howe, K R, *Singer in a Songless Land: A Life of Edward Tregear 1846-1931*, (1991) Auckland University Press, 84.

¹¹ Howe (1991) 84.

1981 Factories and Commercial Premises Act contains sections, the antecedents for which can be traced back to 1891.¹²

No wonder the same researcher later commented on the 1981 Act:

... the legislation has its origins in the 19th century and in its provisions it looks back to the Industrial Revolution rather than forward to the working environments most of us will find ourselves in the 21st century.¹³

In comparing the British, Factories Act 1961 with that of 1848, in relation to the great social changes that had taken place in that time, Cronin similarly observed: "[t]he Act of 1961 is not significantly different in philosophy from that of 1848."¹⁴

Another example of the early very cautious approach is to be found in the 1880 Annual Report of the Under-Secretary of Mines when referring to the bringing into force of the Regulation of Mines Act 1874 also mentioned on p 13.

It is necessary that I should state by way of preface, that they bring into force an Act having for its object the prevention of accidents, incident to an industry which perhaps of all others is surrounded by the most dangerous conditions, is a matter of requiring careful judgement, both with regard to the financial interests of mine owners on the one hand, and the necessity of enforcing provisions to ensure the safety of miners on the other.¹⁵

Nevertheless it is interesting to recall two comments made by Pember Reeves. The first relates to the consolidated Factories Act of 1894 and the 1896 amendment:

As compared with similar European and American laws, it could fairly claim to be advanced and minute.¹⁶

And later, referring to the 1921-22 consolidation of the Factories Act, he quoted an unsourced comment:

The provisions cover the whole field of conditions of employment in factories and constitute what is officially claimed to be "one of the most complete and perfect laws to be found in the statute-book of any country."¹⁷

12 McIntosh, P M, *A History of Factories Legislation in New Zealand: 1879-1981*, (1983) Research Project, Palmerston North: Massey University, 15.

13 McIntosh, (1983) Pt. II, 1.

14 Cronin, J B, *Cause and Effect: Investigations into Industrial Accidents in the United Kingdom*, (1971) 103 *International Labour Review*, 99-115, 115.

15 *Journals of the House of Representatives* (1880) H 18, 1.

16 Reeves W P, *The Long White Cloud: (Ao Tea Roa)* 3rd Ed, (1924) London: Allen & Unwin, 315.

17 Reeves (1924) 316.

While those comments may have had some validity in their time they would certainly not be applicable to our legislation in more recent years. As an example of complacency of the period between the two world wars refer to the quote from F L W Wood on p 86.

2.2 OCCUPATIONAL DISEASE IN THE MINES

There can be no doubt that, over the years, few industries would have had more drastic effects on the health of workers than the mines. Nevertheless in 1909 an amendment to the Coal Mines Act provided that it was illegal for a mine owner to require a prospective worker to have a medical examination and a similar provision was added to the Mining Act the following year. The objective was to prevent an employer dismissing a worker on medical grounds. Special compensation for miners totally incapacitated as a result of contracting miners' phthisis (pneumoconiosis) was introduced by the Miners' Phthisis Act 1915. The pension was 20/- per week for a married man who is totally disabled and 15/- for a single man while a grant of 20 pounds was paid for funeral expenses with a widow being entitled to a pension of 15/- per week. In those days no compensation would have been paid under the provisions of the current Workers' Compensation Act.¹⁸ From 1915 to 30 November 1937, 1071 deaths from phthisis had been reported, that is one in eleven miners and there were 1063 miners on pensions at that date.¹⁹ It was as a consequence of concern aroused by these fatalities, that s 28 of the Mining Amendment Act 1937 provided that workers applying for a job in a quartz mine must furnish two medical certificates; one from a doctor nominated by the mine owner or the mine owners' association and the other from a doctor nominated by the worker or the union, certifying that the worker was free of any weakness of the heart or respiratory system.

At that time there was seemingly no concern about coal miners suffering from the effect of exposure to coal dust. In the late 1950's Dr F A De Hamel undertook a survey of miners' lung functions on the West Coast.²⁰ Before that survey could be undertaken the acquiescence of the miners' union to the necessary medical examinations had to be obtained. In fact the survey was enthusiastically supported by the union. The survey was a fact-finding exercise and made no recommendations. It established the prevalence of pneumoconiosis among the miners was not great with only 32 cases being discovered among the 1343 miners examined.

¹⁸ S 28(4) of the Accident Compensation Act 1982 provides that earnings related compensation is not payable when receiving the miner's benefit and vice versa.

¹⁹ Fagan Hon M, (1937) 249 *New Zealand Parliamentary Debates*, 931.

²⁰ *The Grey Valley Survey, The Department of Health Special Report No 3*, (1961) Wellington: Govt Printer.

One could question whether British conditions may have had some influence in New Zealand. Writing about conditions in British coal mines in the period between the World Wars, Hunter refers to the gradual progress that had taken place in mines with much improved ventilation reducing air-borne dust levels. However in that period, conditions again worsened, as mechanical coal-cutting equipment was introduced, greatly increasing the dust levels once more. Hunter quotes the view of an eminent physiologist, J S Haldane that:

The inhalation of coal dust causes no danger to life but on the contrary gives even protection against the development of tuberculosis.²¹

Hunter then cites this view as being:

... largely responsible for the fact that mining engineers made no attempt to reduce the concentration of air-borne coal dust at a time when the introduction of mechanized methods of mining was causing an increased concentration of coal dust. Of this situation Fletcher (1948) has said -- It must be admitted that medical men by their ill-informed complacency have a heavy load of responsibility to bear for the present high incidence of pneumoconiosis among coal miners.²²

Hunter also makes clear that in earlier times there was confusion about the exact disease that individual workers suffered. Phthisis is now described as an old term, a wasting or consumption; pulmonary tuberculosis.^{23,24}

2.3 ENTER THE HEALTH DEPARTMENT

Just before the beginning of World War 2, the Department of Health realised that more attention should be paid to the health hazards of the workplace. The Department's Annual Report for 1939 has the following comment by the Director-General:

With the expansion of industries, this sphere of public health work is becoming one of increasing importance. Close co-operation has been maintained with the Labour Department.²⁵

In addition Appendix B of the same report refers to recent cases of lead poisoning and concludes:

²¹ Hunter, D, *The Diseases of Occupations*, 6th Ed, (1978) London: Hodder & Stoughton, 1016.

²² Hunter (1978) 1017.

²³ Hunter D, *Health in Industry*. (1959) Harmondsworth, Middlesex: Penguin, 272.

²⁴ Walter, J, Benson, P B & Scott, R B, *Oxford Companion for Medicine*, (1986) Oxford: Oxford UP, 1066.

²⁵ *Department of Health: Annual Report for the Year ended 31 March 1939*, 12.

The introduction of adequate regulations dealing with the hazards of these industries [motor-vehicle assembly and storage battery manufacturing] would do much to awaken manufacturers to the risks involved and the precautions that must be taken. Finally, cases of this nature might be prevented if there were available an adequately-trained staff to carry out routine inspections of factories where any dangerous occupation was undertaken or likely to arise.²⁶

While the Lead Regulations then current dated from 1925 and though probably adequate for the time, the real problem lay in a lack of trained staff to administer them and to give advice to industry.

The Department's Annual Report for 1941 refers to the growth of secondary industries and the need to appoint a qualified medical officer to monitor the health problems of those industries.²⁷ By the 1943 Annual Report the Department was able to report a decision to appoint an industrial hygienist.²⁸ Subsequently Dr J M Davidson, a British Medical Inspector of Factories came to New Zealand on loan from the British Government, to undertake a survey. That this was able to be arranged during World War 2, indicates a serious concern for the health of many workers. Dr Davidson's report subsequently became a catalyst for some action.²⁹

2.4 THE DAVIDSON REPORT

While it is conceded that prior to World War II there had not been the massive development in the use of chemicals that was soon to ensue, nevertheless it is fairly evident that health hazards in the workplace did not then claim much attention. Furthermore as Dr Davidson pointed out, the Labour Department inspectorate was not sufficiently knowledgeable or trained to deal with any toxic or other harmful substances that were then in general use. Strangely Dr Davidson was not concerned with legislation under the control of other departments such as the mines.

Dr Davidson made 21 recommendations, 12 of which were under the heading of "The Responsibility of the State." The recommendations especially relevant to the health hazards of the workplace were:

- * Employers should realize that a much higher standard of hygiene is called for in New Zealand factories than is at present maintained.

²⁶ Department of Health (1939) 113.

²⁷ *Department of Health: Annual Report for the Year ended 31 March 1941*, 6.

²⁸ *Department of Health: Annual Report for the Year ended 31 March 1943*, 7.

²⁹ Davidson, J M, Review of Industrial Safety in New Zealand and the Health of the Industrial Worker, with Proposals for the Development of the System, *Department of Health; Annual Report for the Year ended 31 March 1945*, 19-31.

- * Arrangements should be made for the provision of medical and nursing supervision in factories.
- * Some simplification and codification of industrial legislation in New Zealand is called for.
- * The State should provide better facilities than at present exist for the education of factory managements in matters touching industrial hygiene and the health of industrial workers.
- * Existing facilities should be co-related, and others made available as required, for the training of Factory Inspectors by experts in industrial health and hygiene, industrial toxicology, industrial psychology, sociology, accident-prevention work.
- * There should be included in the factory inspectorate at least one Inspector with special knowledge of engineering, one with special knowledge of chemistry, and one with a medical qualification.

The Report continued:

Consideration should be given to the formation within the Department of Health of a Division of Industrial Hygiene, which would take over from the Department of Labour responsibility for the care of the industrial worker at work in so far as his health, welfare, and safety -- but not remuneration -- are concerned. The factory inspectorate, renewed in the manner suggested above, should be attached to this division.³⁰

An Institute of Public Health was also recommended within the Department of Health. The Report goes on to suggest that:

Such a Division [of Industrial Hygiene] with its own Medical Director would automatically become the focal point on which would be converged health problems affecting all industries, including those not at present handled by the Department of Labour, such as railways, mines, quarries etc. [emphasis added]³¹

Earlier an institute had been recommended by Dr M H Watt, the Director-General of Health following a study trip overseas in 1939 but no doubt the onset of the war precluded any serious consideration of that proposal.³² It is more than a little ironic that even though 47 years have elapsed since Dr Davidson wrote that report, it is only now with the Occupational Safety and Health Bill 1990 that the first move was made towards a single inspectorate and one Act that were first suggested by

³⁰ Department of Health (1945) 33.

³¹ Department of Health (1945) 32.

³² MacLean, F S, *Challenge for Health: A History of Public Health in New Zealand*, (1964) Wellington: Govt Printer, 32.

Davidson nearly half a century ago. Even at this late stage, many of Dr Davidson's recommendations as outlined above have still to be realised. Had these recommendations been accepted when they were first made, they would have provided a basis for a better framework on which to build a more effective approach to the health hazards of the workplace with the presence of a Division of Occupational Hygiene and an Institute of Public Health. This is discussed later in #4.14.

In the light of the fairly recent move of the Labour Department to improve the selection and training of the inspectorate, it is interesting to note that Dr Davidson, in addition to the training needs mentioned in the last recommendation, also advocated higher standards of inspection, improved recruitment and more women factory inspectors.

2.5 A NEGATIVE RECEPTION TO THE REPORT

While Dr Davidson certainly had some influence in the Health Department, elsewhere his report was less well received. When Parliament was considering the Factories Bill in 1946, the Minister of Labour did not mention Dr Davidson's Report and another Government member referred to it as a cursory examination of New Zealand factories even though the study did last 6 months.³³ An opposition member remarked that "employers were not prepared to accept his fairly critical report as genuine," it being also stated that Dr Davidson had only spent half an hour at Bryant and Mays factory.³⁴ This comment seems to overlook that in some places only a very short time was needed to get a fair assessment of the true position whether good or bad. Possibly its poor reception reflected a distaste for criticism from an outsider apart from the usual reaction to change.

At the time of Dr Davidson's report, the only provision of any importance with respect to the health hazards of the workplace in the Factories Act 1921-22 were the very minimal requirements of s 42 which provided for regulations prescribing rules relating to any noxious or dangerous gas or material. From the time of the passing of that Act until it was replaced by the 1946 Act, the only regulations gazetted were the Accumulator (Lead Processes) Regulations 1940, which supplemented the 1925 Lead Processes Regulations, the Spray Painting Regulations 1940 and the Factories Consolidating Regulations 1937, though the last was substantially concerned with safety and welfare matters. The next major regulations that specifically referred the health hazards of the workplace were the:

Electroplating Regulations 1950;

Lead Processes Regulations 1950.

³³ Chapman, C H, (1946) 275 *New Zealand Parliamentary Debates*, 718.

³⁴ Hamilton, A, (1946) 275 *New Zealand Parliamentary Debates*, 720.

These regulations, as were the previous ones, were issued jointly under the Health Act 1920 and the Factories Act. Though amended they still remain in force. They provide for such matters as the provision of antidotes, amenities, protective clothing, medical examinations with the medical examiners given the power to suspend affected workers.

The Factories Act 1946 which was influenced by the changes in the British Factories Act 1937 did not make any noteworthy advances. Nevertheless the Minister of Labour, Hon J O'Brien claimed in Parliament that "[t]here is adequate protection for the health of people who work in factories." And later that the Act "provides for the remodeling of factories where there is insufficient airspace."³⁵

2.6 BUT SOME POSITIVE ACTION

In 1947 Dr T M Garland was appointed New Zealand's first Industrial Medical Officer of Health and began to set up the Division of Industrial Hygiene within the Department of Health. In the next few years Dr Garland attempted to improve the health and safety aspects of the New Zealand workplace. Inevitably, because of the conditions at that time, much of his effort had to be directed to the prevention of injury and the problem of providing adequate health services for the average small plant.

The 1949 Annual Report of the Department stated:

It is difficult at this stage to say much about specific industrial diseases in New Zealand. Working-conditions in many instances are such that it is inevitable that the health of workers will be affected, but the type of training of the factory inspectorate and the machinery for notification by general practitioners is not such as to enable accurate records to be established as yet.³⁶

Later in the same report the Director-General of Health recorded that a letter had been sent to the Medical Research Council suggesting that a committee be set up "to deal with research into matters affecting health and safety at work."³⁷ There is no mention of any action following.

Shortly after Dr Garland's arrival, the Workers' Compensation Amendment Act 1950 was passed establishing the Workers' Compensation Board. The functions of the Board as set out in s 28 of that Act are of some interest. Though they included "conducting research into the causes, incidence and methods of prevention of accidents, injuries and diseases in respect of which compensation may

³⁵ O'Brien Hon J, 275 *New Zealand Parliamentary Debates*, (1946) 712.

³⁶ *Department of Health: Annual Report for the Year ended 31 March 1949*, 54.

³⁷ *Department of Health (1949)*, 65.

become payable," the next function merely authorised "generally preventing accidents." As is recorded later, the Board devoted its entire efforts to injury prevention. Even its support of occupational health centres was based on their relevance to injury prevention.

One of the early problems identified by Garland, was the need for satisfactory data on the health problems of the workplace. After discussions with the Medical Association it was agreed that the list of notifiable diseases be extended to include diseases arising from occupation. *The Notifiable Diseases Notice 1953* lists the following Occupational diseases:

- * Skin diseases arising from occupation;
- * Any damage to eyesight arising from occupation;
- * Diseases of the respiratory system arising from occupation;
- * Poisoning from any insecticide, weedicide, fungicide or animal poison met with at work;
- * Poisoning from any gas, fumigant, or refrigerant met with at work;
- * Poisoning from any solvent met with at work; and
- * Poisoning from any metal or salt of metal met with at work.

The primary objective of the notice was, as its title suggests, to establish a requirement to notify on the part of medical practitioners. It had no relevance to compensation and only indirectly to prevention. This, as with many other reporting systems, proved to be less than satisfactory. At the outset the disease must be recognised as being occupationally related and secondly the doctor concerned must make the effort to file a report. By far the most common disease then reported was dermatitis. The Notice was repealed by the Health Act 1956 and replaced and extended by that Act's 2nd Schedule. The schedule was later further expanded by the Health Amendment Act 1982. The Department has recently ceased to publish statistics compiled from those reports as the resultant data were considered very unreliable.³⁸ The 1977 Report records that notifications did not match the claims being received by ACC.³⁹ Clearly it takes more than a statutory requirement to report to create a satisfactory reporting system. Appendix III summarizes some of these reports where further comment is made.

Apart from giving attention to occupational diseases Dr Garland was an enthusiastic advocate for the provision of medical services to the small industries. In conjunction with the Workers' Compensation Board, a number of Occupational Health Centres were established in areas where there was sufficient concentration of industry. Despite the primary objective of the centres being prevention, most industrialists viewed them as a convenient facility for treatment of minor injuries and they were promoted on that basis. The preventive work undertaken by nurses visiting local industries, both on a

³⁸ Mortimer, L, (1990) Personal communication.

³⁹ *The Public Health: Report for the Year ending 13 March 1977*, 68.

regular basis and following up specific injuries and occupational diseases, was not seen by many as important. Regrettably over the years the value of their work has been less appreciated. As Glass comments after referring to the return of Dr Garland to England:

But the understanding of their function, the drive and enthusiasm of their creator was gone. In time the momentum fell away, the conservative elements in the bureaucracy gained the ascendancy, the subtle pressure of the Medical Association prevailed. From a high point of 12 such clinics in 1967, there are now only three that are really effective.⁴⁰

2.7 THE DECLINE AND FALL OF OCCUPATIONAL HEALTH SERVICES

From a study of the annual reports of the Health Department over the intervening years, one must agree with Glass that the initial drive in the 50s and 60s lost a great deal of its momentum. There has been a steadily declining involvement of the Department with the health problems of the working environment despite the efforts to build a small cadre of trained and experienced staff who produced a substantial amount of educational and informative material. Granted that there are many instances where it is difficult to draw any distinction between the problems of the workplace and those of the environment in general. Undoubtedly this can, to a considerable extent, justify responsibility for both the working environment and the general environment being placed under the same arm of the Health Department (and now the area health boards). That, however should in no way lead to a lessening of the involvement with occupational health and safety, as has been the case. This is all the more to be regretted as there is, at the same time, no obvious evidence that there has been any improvement in the appreciation of the extent and nature of many of the health hazards of the workplace. This is the message one gets from the many members of the staff of the Labour Department with whom contact has been made in recent months.

In 1957 after the departure of Dr Garland, the Division of Occupational Hygiene was abolished with occupational health being incorporated into the Division of Public Health. The Department maintained, however, that the integration of occupational health into the public health programme had its benefits stating that by 1960 that "the reports of smaller districts indicate much wider impact in consequence."⁴¹

Then in 1964, an Occupational Health Unit was opened in Wellington. The objective was to provide a comprehensive laboratory service with facilities for estimating chemical hazards through air sampling and biological monitoring as well as assessing noise hazard through noise analysis.⁴²

⁴⁰ Glass, W I, Dr Tom Garland -- a pioneer in occupational health, (1989) 102 *NZ Medical Journal*, 109-110, 110.

⁴¹ *Annual Report of the Department of Health for the Year ending 31 March 1960*, 18.

⁴² *Annual Report of the Department of Health for the Year ending 31 March 1965*, 17.

The following excerpts from the Department's annual reports are of interest. 1966, inspectors of health now also involved in the Department's occupational health work.⁴³ In 1967 the Auckland Environmental Health Laboratory also began to assist with this work.⁴⁴ 1970, a mention of a survey into the effects of asbestos in New Zealand.⁴⁵ 1974, the environmental chemistry laboratory which had been part of the occupational health unit was transferred to the National Health Institute thus distancing the scientific facilities from the field work.⁴⁶ 1975, a growing concern with the chemical environment was shown by the increased demand for the services.⁴⁷ After a two-year break an assistant director was appointed to the Occupational Health and Toxicology Unit in 1977 thus giving added impetus to the expansion that had been planned.⁴⁸ In 1977 the Department received approval for three special occupational health units, each comprising a nurse, an occupational hygienist and a physician to be based in Auckland, Wellington and Christchurch.⁴⁹ Scarcity of adequately trained industrial medical specialists handicapped recruitment to these units and suitable appointees were sought in the United Kingdom.⁵⁰

However by 1979 proposed developments in occupational health had been curtailed because of difficulties in obtaining suitably qualified staff though the Departmental Districts were asked to produce occupational health profiles to gauge the extent of the problem.⁵¹ Endeavours were then made to recruit staff from overseas and by 1982, despite the difficulties, work continued to expand and new staff were engaged.⁵² In 1983 an Occupational Health Advisory Committee was established.⁵³ By 1989 the Department was anticipating a move to a single authority but two goals were promulgated in the annual report for that year. One was concerned with the continued publication of *Workplace Exposure Standards for New Zealand* and the other to ensure a "comprehensive information, assessment and

43 *Annual Report of the Department of Health for the Year ended 31 March 1966*, 24.

44 *Annual Report of the Department of Health for the Year ending 31 March 1968*, 22.

45 *The Public Health, Annual Report for the Year ended 31 March 1970*, 31.

46 *The Public Health, Annual Report for the Year ended 31 March 1974*, 31.

47 *The Public Health, Annual Report for the Year ended 31 March 1975*, 33.

48 *The Public Health, Annual Report for the Year ended 31 March 1977*, 67.

49 *The Public Health, Annual Report for the Year ended 31 March 1978*, 39.

50 *The Public Health, Annual Report for the Year ended 31 March 1980*, 14.

51 *The Public Health, Annual Report for the Year ended 31 March 1979*, 37.

52 *The Public Health, Annual Report for the year ended 31 March 1982*, 10.

53 *The Public Health, Annual Report for the Year ended 31 March 1983*, 10.

advisory service ... in all aspects of occupational health."⁵⁴ In the 1990 report brief mention was made of occupational health activities but only with respect to the period April-June 1989.

Notwithstanding the considerable contribution of a small but enthusiastic band of occupational health specialists in the Health Department, when considering the expansion in the 50s and early 60s, it cannot be said that the importance of occupational health has grown, rather the reverse. Today that responsibility now rests with the Labour Department which has the considerable task of equipping itself to undertake that work. The very circumstances that the Department now faces require it to rely on the area health boards from which it contracts for the services at the local level, a far from satisfactory arrangement with a single department being replaced by a number of boards. Officers of the Labour Department have indicated that the service from the boards is very patchy. This is not surprising considering the boards' problems in coping with the demands for hospital care. One occupational health expert went so far as to say that the relationship between the Department and the boards was only good in two districts.⁵⁵

2.8 ANOTHER CATALYST FOR ACTION

In 1987 an informal committee comprising members from the New Zealand Employers' Federation, The Council of Trade Unions, Government Departments concerned with occupational health and safety and ACC was formally constituted as the Advisory Council on Occupational Safety and Health (ACOSH). The Council was chaired by the Minister of Labour. Spurred by a lack of action by the Government authorities the Employers' Federation and the Council of Trades Unions initiated the production by the Council of a discussion document recommending:

- * A new Act which would apply to all work activities, replace existing legislation, set out basic principles, and establish the following administrative arrangement.

- * A tripartite Commission accountable to a Minister and responsible for developing and implementing policies to ensure a safe and healthy work environment

- * An Authority which would be the administrative and operational arm of the Commission.

⁵⁴ *The Public Health, Annual report for the Year ended 31 March 1989*, 14.

⁵⁵ Personal communication from Dr J C J Stoke.

* An Institute which would be the technical, scientific and research arm of the Commission.⁵⁶

To a considerable extent the above recommendations are similar to many developments that have taken place over the last two decades in some major countries of the Western World. Regrettably it is not too much of an exaggeration to state that in the whole field of occupational health and safety New Zealand has tended to lag behind the best of overseas practice; often well behind. Though there have been times in the past when New Zealand could be justifiably proud of the leadership it has attained in many aspects of social legislation; even recently with Accident Compensation, this has never been the case with occupational health and safety. For many years New Zealand has merely followed British legislation.⁵⁷ Then came moves to make substantial legislative changes and when presenting his budget in 1989 the Minister of Finance indicated:

... that in future one agency should be responsible for policy and delivery of occupational safety and health in all industries and activities and all types of employment of employment.⁵⁸

It was not until well on in the 1990 Parliamentary Session that an Occupational Safety and Health Bill was tabled in the House. By the end of the Session it had been neither debated nor passed. It now becomes a matter of vital importance, not only to ensure that there is change but, in addition, that there is a greater appreciation of the need for change.

2.9 THE ASBESTOS ENQUIRY

The most recent evidence of concern for the health hazards of the environment is to be found in the report of the Asbestos Advisory Committee to the Minister of Labour.⁵⁹ It could be claimed that the Committee was established as much in response to concerns over compensation as to preventive aspects. The Minister of Labour has announced that Accident Compensation may be paid to those asbestos victims who had been precluded from entitlement to compensation as their exposure occurred before 1 April 1974.⁶⁰ The implications of this report are dealt with later in Chapter 13.

⁵⁶ *Occupational Safety and Health Reform*, (1988) Wellington: ACOSH. 2.

⁵⁷ See Factories Act 1946 where there are many references to corresponding provisions in the British Factories Act 1937.

⁵⁸ Caygill, Hon D, *Securing Economic Recovery: Budget Speech*, (1989) Wellington: Govt Printer, 18.

⁵⁹ *Asbestos: Report of the Advisory Committee to the Minister of Labour*, (1991) Wellington: Department of Labour.

⁶⁰ *Evening Post*, 27 August 1991, 3.

2.10 RECENT DEVELOPMENTS OVERSEAS

Up to the 1970's the approach to regulating occupational health and safety followed along similar lines in countries like Great Britain, Canada, Australia and New Zealand. One of the first moves for a substantial change came in 1970 in Britain with the appointment of the Committee on Safety and Health at Work under the chairmanship of Lord Robens,⁶¹ and in the United States, the passing of the Occupational Safety and Health Act of 1970 (OSHA). As may have been expected in countries following the British tradition, the former report has had the greatest influence even though action has not followed with any sense of urgency; the exception being South Australia with its Industrial Safety, Health and Welfare Act 1972. In the intervening years all Australian states have enacted new legislation, which all embody many of the principles advocated in the Robens Report. In Canada too, in the last two decades there have been many changes, much of which involved implementing greater worker participation.

2.11 WHAT LESSONS ARE THERE TO BE LEARNT FROM THE PAST?

A hundred years ago the regulation of occupational health and safety in New Zealand would have differed little from other countries from which it was the custom of the time to take a lead. Emerging from 19th century *laissez faire*, there was much that called for action. But New Zealand was also slowly recovering from a prolonged depression and resources were limited. Over the succeeding years progress has been very slow and until the last three or so decades regulation has not been backed up by formal in house prevention activity. For the most part such preventive as there has been has been largely directed to injury prevention. The opportunity to link occupational health and safety more closely with rehabilitation and compensation has not been taken. This, despite of the establishment of the Workers' Compensation Board back in 1951 and more recently the Accident Compensation Commission (now Corporation). Suggestions for change albeit somewhat muted, especially calls for a single statute and one enforcement agency have been made. The recommendations of Walker in a report commissioned by the State Services Commission in 1981 never seem to have been given any serious consideration.⁶² However since the British Health and Safety Act 1974 followed the Robens Report, there was for nearly 20 years little inclination from either political party to follow Britain once more. Why was this so?

⁶¹ *Safety and Health at Work: Report of the Committee*, (1972) Cmnd 5034, London: HMSO (referred to as the Robens Report).

⁶² Walker, I K, *Occupational Safety: An inquiry into the co-ordination of legislation on industrial safety, health and welfare*, (1981) Wellington: State Services Commission.

In the early 1970s there was little appreciation of the changes that were taking place in Great Britain apart from one or two voices such as the Chief Safety Engineer of the Department of Labour at the time, James Cornish.⁶³ His was, however, a lone voice in the Department. No doubt a lack of any enthusiasm for change from either political party played its part. In those days too, organized labour was too under-resourced to play an effective part in any demand for better regulation. To a considerable degree, this may reflect the involvement of many unions in fighting compensation claims for their members after injury had occurred especially the attempts to establish negligence on the part of an employer. After the advent of Accident Compensation and the demise of the common law claim, that attitude slowly changed. The more recent arrival of the Advisory Council for Occupational Safety and Health not only provided a forum for more informed debate but gave an indication of how much more could be achieved by a more formalized tripartite occupational health and safety commission.

While it would be foolish to suggest that New Zealand should slavishly follow systems adopted in other countries, there is a great deal to be gained from a study of those other systems, the principles they adopt and even more the research that has been undertaken. While those acclaimed as successes demand study, failures too, can be helpful when considering changes in policy. However not all reports and studies will be free of partisan influence. In the evaluation of occupational health and safety strategies there are many opportunities for the exercise of subjective judgement, but there is much that we could ignore at our peril. The reasons why some success has not always been maintained need close attention. This is discussed later in Chapters 7 and 8.

⁶³ Cornish, J, *Construction Safety Law: LL M Thesis, Victoria University of Wellington*, (1979) 38.

PART III

THE FACTS

CHAPTER 3

HEALTH PROBLEMS OF THE WORKPLACE

3.1 DEFINITIONS

Key words in this study -- injury, disease, illness and sickness -- are all in common usage and thus are subject many differing perceptions. They are defined in the *Oxford English Dictionary*, (2nd Edition 1989) in considerable detail and extracts from those definitions are set out below:

Disease

- 1 Absence of ease, uneasiness, discomfort, inconvenience, etc.
- 2 A condition of the body in which its functions are disturbed or deranged, a morbid physical condition, a departure from a state of health, especially when caused by structural change.
- 3 A deranged, depraved or morbid condition (of mind or disposition).

Illness

The quality or condition of being ill.

Injury

Hurt or loss caused to or sustained by a person or things; harm, detriment or damage.

Sickness

The state of being sick or ill, the condition of suffering from some malady, illness or ill health.

3.2 WORLD HEALTH ORGANISATION DEFINITIONS

The distinction made by the World Health Organisation (WHO) between **occupational diseases** and **work-related diseases** is of prime importance though this is not always recognised:

... in occupational diseases, there is a direct cause-and-effect relationship between the hazard and the disease. In work-related diseases, in contrast, the work environment and the performance of work contribute significantly, but as one of a number of factors, to the causation of a multifactorial disease. Occupational diseases therefore stand at one end of the spectrum of work-relatedness, where the relationship to specific causative factors at work has been fully established and the factors concerned can be identified, measured and eventually controlled. At the other end, diseases may have a weak, inconsistent, unclear

relationship to working conditions; in the middle of the spectrum there is a possible causal relationship but the strength and magnitude of it may vary.¹

The WHO has adopted the following definitions:

Occupational diseases, by definition exclusively affect working people exposed to the specific hazards in question. In some instances however, manifestations of such diseases may also prevail in the community. For example, in the case of endemic byssinosis in an Egyptian village, workers processed flax in their homes and the resulting dust exposure affected their wives and children.

Multifactorial diseases, which may frequently be work-related, also occur among the general population, and working conditions and exposures need not be risk factors in each case of any one disease. However, when such diseases affect the worker, they may be work-related in a number of ways: they may be partially caused by adverse working conditions; and they may be aggravated, accelerated or exacerbated by workplace exposures; and they may impair working capacity. It is important to remember that personal characteristics, other environmental and sociocultural factors usually play a role as risk factors for these diseases.²

The report goes on to warn that:

... multifactorial "work-related" diseases are often more common than occupational diseases and therefore deserve adequate attention by the health service infrastructure, which incorporates the occupational health services.³

Certainly it is the multifactorial diseases which present the greater problem.

The WHO International List of Occupational Diseases is set out in Appendix IV. This list, as amended in 1980, has also been appended to ILO *Convention 121* concerning Employment Injury Benefits, its prime purpose being to establish entitlement for compensation. It is perhaps well to emphasise that the WHO list covers what are largely considered to be occupational diseases and not work-related diseases. As a report of a committee of experts for the 1980 International Labour Conference conference commented:

1 World Health Organisation, *Identification and control of work-related diseases*, Report of a WHO Expert Committee, Technical Report Series 714 (1985) Geneva: WHO, 9.

2 WHO Report (1985) 10.

3 WHO Report (1985) 10.

An essential element for recognition of an occupational disease was that the cause-effect relation was clearly established.⁴

The importance of four factors was recognised by the committee; work history, length of exposure, dose or nature of exposure and individual susceptibility. Additionally the incidence of the disease in the occupational group in relation to the non-exposed population was regarded as an extremely important factor in reaching their decision.

3.3 THE POSITION IN NEW ZEALAND

Though so far New Zealand has not adopted a schedule of occupational diseases, it is considered that the provisions of s 28 of the Accident Compensation Act 1982 are sufficiently wide-ranging to cover all those diseases in the WHO schedule which are almost exclusively occupational diseases rather than work-related ones. Thus when a worker whose work involves exposure to lead contracts lead poisoning there should be no doubt that the disease is "due to the nature of any employment" in the terms of s 28 of the Accident Compensation Act 1982. In an official publication the following appears:

While the Accident Compensation Corporation believes that the present legislation gives wider cover than could be given under an exclusive schedule it is at present engaged in preparing a schedule of occupational diseases. The schedule will be adopted for administrative purposes, and will not exclude cover for diseases which are not listed but which qualify in terms of general statutory provision.⁵

Refer also to the comments of Dugdale on p 86.

However the schedule approach cannot solve the problem of the work-related diseases, for while a schedule could link asbestosis with exposure to asbestos dust, it could not do so with a carcinoma of the lung. Refer to the comments of Heath *et al* on p 40.

3.4 DIFFERENTIATING DISEASE FROM INJURY

Differentiating disease from injury would seem to be only significant in compensation issues, as occupational health and safety policy, however implemented, seeks to eliminate or reduce both disease

4 International Labour Office, *Report VII (b) Amendment of the List of Occupational Diseases Appended to the Employment Injury Benefits Convention, 1964 (No 121)*, (1980) Geneva: ILO, 9.

5 Department of Labour, *International Conventions Ratified by NZ*, (1988) Wellington: Labour Department, 45.

and injury. Though the importance of this distinction lies largely in matters of compensation but, as will be commented on later, preventive issues may also be affected. With good reason have some writers maintained that the distinction drawn between "injury" and "disease" though superficially a logical one, is in many respects an artificial one. Brooks in a detailed examination of the development of judicial interpretation of the concepts of injury and disease in Australia comments: "[t]he resultant obscurity and inaccessibility of these concepts to non-lawyers will be painfully apparent."⁶ Here, as Stapleton maintains, the legal and medical professions seem to differ, noting that:

... the demarcation lines between these classes are artificial from a medical point of view but for various reasons they provide workable classifications for legal analysis.⁷

Later Stapleton, after outlining compensation problems with conditions that gradually develop over a period, in both Britain and New Zealand and the tendency to exclude pathogenic attacks as being due to a "process," comments: "[t]he conceptual irrationality of the distinction is now generally accepted."⁸ She also mentions that "[m]edical usage itself makes no sharp distinction between injury by accident and disease."⁹ Ferguson comments:

Acute chemical and physical burns, for example, can be seen as injuries whereas acute and sub-acute internal effects from radiations or inhalation may not.¹⁰

He then asks "is hepatitis B contracted in a laboratory from accidental needle prick disease or injury?"¹¹ There remains considerable room for dispute which may become crucial when the law attempts to define terms more precisely as is suggested in the recent White Paper on Accident Compensation.¹²

As Boden *et al* explain:

Scientific evidence is often essential in the determination of legal causation, but it is not a substitute for it. Both take their origins from common experiences, and both depart from these origins in ways connected with the context in which they are used. In science that

6 Brooks, A, The concepts of "injury" and "disease" in Workers' Compensation Law >> A re-examination in the light of recent reforms, (1987) 10 *University of New South Wales Law Journal*, 39-66, 40.

7 Stapleton, J, *Disease and the Compensation Debate*, (1986) Oxford: Clarendon, 4.

8 Stapleton (1986) 51.

9 Stapleton (1986) 50.

10 Ferguson, D, Occupational Disease and Injury in *Occupational Health and Safety*, Douglas, D, Ferguson, D, Harrison, J & Stevenson, M, (1986) Sydney: Australian Medical Association, 21.

11 Ferguson (1986) 21.

12 Birch, Hon W, *Accident Compensation: A Fairer Scheme*, (1991) Wellington: Minister of Labour, 32.

context is dominated by objectivity and generality, in law, by the notion of a responsible subject and a singularity and uniqueness of occurrence. ... since law and science have different objectives, some differences in the determination of legal and scientific cause should come as no surprise.¹³

It remains just to note these views which really do not affect the extent of the issues being reviewed.

3.5 OTHER CONFUSING FACTORS

There are a number of factors that contribute to the confusion, and this is particularly the case with many instances of repetitive trauma. Witness the recent controversy over repetitive strain injury (RSI) or occupational overuse syndrome (OOS). An example of what could be regarded as an extreme case concerned a worker in a slate quarry who developed silicosis. The House of Lords did not accept that every particle of silica that lodged in the claimant's lungs was an infinitesimal injury, though an earlier decision of the Court of Appeal had accepted a similar plea.¹⁴ In the latter case the claimant had contracted Reynaud's disease over a period of 19 months, after using a rotary fettler that vibrated at 2,800 revolutions per minute. That disease did not come within the limited disease provisions of the Workmen's Compensation Act at that time. However the Court accepted that the infinite number of vibrations that his hand endured to be a succession of minor trauma thus entitling the claimant to compensation.¹⁵ In a subsequent case it was suggested that the shorter period of time over which the injury occurred in *Fitzsimons'* case may have been of importance.¹⁶

It would seem that today there should be no confusion as most would subscribe to the view that conditions resulting from repetitive trauma would be properly regarded as diseases not injuries.

3.5.1 AGGRAVATION OR ACCELERATION OF AN EXISTING DISEASE

With respect to Workers' Compensation legislation, it has long been recognised that the accidental injury need not be the sole cause of death or incapacity but, providing it is a contributory factor, compensation may be payable. This irrespective of whether the pre-existing disease was occupational in

13 Boden, L I, Maires, R & Ozonoff, D, Science and Persuasion: Environmental Disease in U S Courts, (1988) 27 *Society, Medicine and the Law*, 1019-1029, 1028.

14 *Roberts v Dorothea Slate Quarries Co Ltd* [1948] 2 All ER 201.

15 *Fitzsimons v Ford Motor Co Ltd (Aero Engines)* [1946] 1 All ER 429.

16 *Roberts v Lord Penrhyn* [1949] 1 All ER 891.

origin or not. This is allied with the thin-skull cases under the old common law; that is, you take your victim as you find him.¹⁷ Unfortunately this has given rise to some confusion and may cloud the issues concerning work-related disease. If work-related trauma aggravates or accelerates the progress of an existing disease causing death or injury, it would seem incorrect to consider the ultimate cause of death or injury, a work-related disease unless the disease was, in fact, work-related.

3.5.2 THE EFFECT OF STRESS

In recent years a lot more attention has been paid to the effect of stress in the workplace. DeClercq comments:

Recent research has identified specific job stressors as high risk factors for stress diseases, including mental illness. The research has also disclosed that work stressors are more prevalent and pervasive than previously thought. Many jobs not traditionally perceived as stress producing are, in fact, often more stressful than the more commonly identified high-stress occupations. For example, video display terminal operators performing clerical tasks were found in one study to have higher stress reaction levels than air traffic controllers.

Such scientific evidence may be useful in enabling physicians to testify to medical causation in mental stress cases. Since it is impossible to state with certainty that a specific disease was caused by a specific chronic stressor, scientific evidence of relative risk bolsters causation conclusions. The scientific evidence is also useful in overcoming ignorance and misunderstanding on the part of workers' compensation judges, insurer representatives, and others.¹⁸

DeClercq then maintains that unlike most other occupational diseases, mental stress usually results from exposure to a number of stressors rather than one agent. However many work-related diseases present similar problems. Difficult as proving causation is, in the case of work-related disease, proving stress to be work-related could be even more challenging.¹⁹

Quinlan and Bohle after commenting that "[p]sychological research on occupational stress and illness have identified aspects of the development of occupational illness that are heavily discounted by

¹⁷ *Smith v Leech Brain & Co Ltd* [1971] 2 QB 232.

¹⁸ DeClercq, N, Workers' Compensation, Job Stress, and Mental Injury (1985) 9 *Labor Studies Journal*, 279-292, 284.

¹⁹ *re Fyfe*: Decision No 29/87 (1986-87) 6 NZAR 317.

the medical model," then draw attention "to the importance of recognising the impact of work on subjective health and well being of workers."²⁰ They then state that psychologists:

... have also attempted to disentangle the complex interaction between social, organizational, psychological, and biological variables that is at the heart of occupational illness. Unfortunately psychological theory has been distorted by powerful vested interest groups to support 'stress management ideology' which attempts to transfer the responsibility for stress away from the organisation and onto the individual worker.²¹

This has an affinity for the thin-skull cases referred to in #3.5.1 and there seems to be no reason why personal susceptibility to stress should be treated any differently than to cancer as was *Smith's* cancer.

The issue of stress has been aired in the report of a committee considering the problems of firemen involved in fighting the fire in the ICI warehouse which housed many chemicals. One of the Committee's conclusions was as follows:

We consider that the continuing symptoms displayed by firefighters are the result of long-term and understandable stress caused by their involvement in the fire. Our reasons are:

- * a toxicological explanation is wholly inconsistent with what is known of toxicological effect
- * the skin symptoms, which are non-specific, could be a result of skin sensitization at the fire, but could also be explained by stress and emotional upset
- * the neuropsychological test results may not indicate a statistically significant group response and may themselves measure dysfunction based on stress rather than neurotoxicity
- * the GHQ [General Health Questionnaire] results and the uncertainty, anxiety and existence of substantial stressors as a result of the social history of the fire, are all strong pointers to an emotional basis for the symptoms rather than a toxicological one.²²

20 Quinlan, M, and Bohle, P, *Managing Occupational Health and Safety in Australia*, (1991) Melbourne: MacMillan, 166.

21 Quinlan & Bohle (1991) 166.

22 *The Health Consequences of the ICI Fire: Report to the Minister of Health on the Health of Firefighters in the Fire at the Riverview Store, Mount Wellington, Auckland, 21 December 1984*, (1990) Wellington: Health Department, 105.

The reluctance of compensation authorities to recognise the effects of stress and other psychological factors as being on all fours with physical injury, no doubt stems from a tendency to take a rather narrow view of both "injury" and "disease." However, as Cooke P stated, when commenting on the definition of "personal injury by accident" as set out in s 2 (1) of the Accident Compensation Act 1982:

... within para (a) such consequences may well be 'mental' if they are not physical ones. The words 'The physical and mental consequences of any such injury or accident' may have been intended by the legislature as a comprehensive expression covering all consequences to the victim's person.²³

There is also the popular misconception about the type of occupation which causes stress.

In view of the increasing concern with the effects of stress, many will be puzzled at the intention of the Government that in proposed Accident Compensation changes "[s]tress and mental injury will not be covered unless physical injury is present."²⁴ The White Paper proceeds on the surmise that present scheme "does not include stress cover." Many would disagree. As Lord Macmillan said in *Bourhill v Young* [1943] AC 92 at p 103;

The crude view that the law should take cognizance only of physical injury resulting from actual impact has been discarded, and it is now well recognised that an action will lie for injury by shock sustained through the medium of the eye or the ear without direct contact. The distinction between mental shock and bodily injury was never a scientific one, for mental shock is presumably in all cases the result of or at least accompanied by, some physical disturbance in the sufferer's system. And a mental shock may have consequences more serious than those resulting from physical impact. But in the case of mental shock there are elements of greater subtlety than in the case of an ordinary physical injury and those elements may give rise to debate as to the precise scope of legal liability.

One could question whether the intention of the proposed change was merely to walk away from possible difficult claims rather than distribute natural justice? From the comment in the White Paper on p 32 it would seem that the intention to exclude stress was a fear of escalating costs in those overseas workers' compensation schemes that compensate for stress.²⁵

As Ashford comments:

²³ *Auckland City Council v Blundell* [1986] 1 NZLR 732, 738.

²⁴ Birch, (1991) 32.

²⁵ Birch, (1991) 32.

Research on stress as a precursor of both mental and physical disease -- and as a co-causative factor of disease in combination with toxic or carcinogenic agents -- is in its infancy. Hence the importance of stress continues to be a source of scientific-medical dispute. In the HEW Report *Work in America*, stress was identified as having important consequences for job dissatisfaction and for mental and physical occupational disease.²⁶

The International Labour Organisation have published a number of reports on stress such as *Stress in Industry: causes, effects and prevention* by L Levi, OHS Series No 51 (1984). As discussed later in Chapter 10, payment of compensation provides a spur for instituting preventive measures in some instances. Undoubtedly as stress may develop from more than one cause, there may be difficulties in providing sufficient proof of causation, but this is no different from many other forms of work-related disease.

For many years little attention has been paid to other factors often allied with stress which may also be a factor influencing both health and injury in the workplace. In a World Health Organisation Report quoted in #3.2 the following initiating factors are covered -- environmental psychosocial risk factors such as, overload, underload, shift work, migration, role in the organisation, career development, interindividual psychosocial risk factors, psychosocial stress, etc.²⁷

3.6 THE EXTENT OF WORK-RELATED DISEASE

It is widely recognised that the extent of the problem is largely unknown. Most researchers and others involved in this field accept that occupationally-related disease is more prevalent than may be gathered from any published statistics. However there is a wide disparity of views about the real extent of the problem.

Although the relationship between work and many illnesses has, in some cases, been known for many years, the very slow progress toward adequate compensation coverage and, even more, the lack of effective preventive measures has been all too evident in most countries. Occupational health problems were known to the Romans; lead for example. Lewis Carroll's mad hatter who had been exposed to mercury in the felting process, and Percivall Pott's chimney sweep with his scrotal cancer are examples

²⁶ Ashford, N A, *Crisis in the Workplace: Occupational Disease and Injury*, (1976) Cambridge MA: MIT Press, 124.

²⁷ WHO Report (1985) 14.

of such early knowledge. At the same time preventive measures have lagged even more than compensation provisions. This, despite the work of Agricola and Paracelsus back in the 16th century; and the 17th century advice to the medical profession of the father of occupational medicine, Ramazzini -- that after taking time for his examination, he should ask a sick worker -- What is your occupation?²⁸ Advice that, even today, is seemingly often overlooked.

Though the dangers of asbestos have been common knowledge for many years, Selikoff reports that in North America "few dust counts were made in insulation work until the mid-1960s."²⁹ As will be commented on later action in New Zealand was even more belated and less extensive.

3.7 THE EXAMPLE OF VINYL CHLORIDE

The example of vinyl chloride provides a good but not common illustration of how the toxicity of a chemical can be established. On 22 January 1974, the B F Goodrich Company revealed that three workers at its vinyl chloride (VC) plant in Louisville, Kentucky, had recently died of angiosarcoma, an extremely rare and incurable cancer of the liver, and that a fourth had died of the same disease five years earlier.³⁰ The subsequent detection of similar cases in other plants clearly indicated that the problem was not unique to the Louisville plant but was one for the whole industry.

Using the National Cancer Institute's Third National Cancer Survey (1969-1971) Heath *et al* calculated the expected annual incidence of angiosarcoma of 0.0014 case per 100,000, or about 25-30 (sic) cases in the entire United States population. When applied to the estimated VC workforce it was suggested that only about 0.03 case could be expected in that population over a decade.³¹ This significant epidemiological evidence of a clear link between the angiosarcoma and the exposure to VC at work led to the imposition by regulation of stringent controls. The same authors then go on to comment:

28 Raffle, P A D, Lee, W R, McCallum, R & Murray, R, *Hunter's Diseases of Occupations* (1987) London: Hodder & Stoughton. 38.

29 Selikoff, I J, Hammond, E C & Seidman, H, Mortality experience of insulation workers in the United States and Canada, (1979) 330 *Annals of the New York Academy of Sciences*, 91-116, 92.

30 Doniger, D D, Federal Regulation of Vinyl Chloride: A Short Course in the Law and Policy of Toxic Substances Control, (1978) 7 *Ecology Law Quarterly* 500-677, 500.

31 Heath, C W, Falk, H & Creech, J L, Characteristics of cases of angiosarcoma in the liver among vinyl chloride workers in the United States, (1975) 329 *Annals of the New York Academy of Sciences* 231-236.

Needless to say, had the situation concerned a common tumor such as lung cancer, the picture would have been very much less clear cut and would have required many more cases and much more elaborate epidemiological manipulation to associate tumor with industrial VC exposure.³²

If the latter circumstance had prevailed and with the lack of any incriminatory evidence, then it is highly unlikely that any preventive action would have been taken in the workplace or regulations have been imposed. It is to that critical prospect that aspects of this thesis are addressed, for this possibility typifies many situations to be found in the real world. Faced with the facts of the VC workers as outlined above, few would dispute that their disease was work-related.

3.8 MANY CAUSAL FACTORS

In many other cases, establishing in a particular case that a disease or illness may be work-related could be a daunting and, at times, an impossible task. At the outset one may think of:

many known toxic substances;

the host of chemicals in daily use, many of which may have some degree of potential for harm;

heavy metals;

solvents;

pesticides;

fungicides and

insecticides, etc.

There are also the physical, biological and psycho-social hazards to be considered. Furthermore in many situations there can be a considerable degree of uncertainty as to the extent or degree of harmfulness of such substances. There is also the possible synergistic effect arising from the use of two or more chemicals. This is in marked contrast to those aspects of the workplace which can be a causal factor in traumatic injury. Whatever shortcomings and difficulties there may be with the current legislation and its application within the field of injury prevention, they pale into insignificance when considering their role in preventing occupational disease.

³² Heath *et al* (1975) 233.

3.9 AMERICAN ESTIMATES OF FATALITIES

In the United States the annual death rate from occupationally-related disease has been variously estimated from as low as 1,000 to as high as 100,000.³³ These are, however, very much estimates which some would challenge. An Interagency Task Force on Workplace Safety and Health in referring to the increasing concern over health effects of the workplace exposure to toxic substances and the estimates that have been made of the number of cancer deaths stated:

Beyond these controversial and gloomy estimates it is generally conceded that the nature and extent of US occupational diseases is largely unknown. The often quoted DHEW [Department of Health, Education and Welfare] past estimate of 390,000 new cases of occupational disease and 100,000 deaths per year is felt by others to be very approximate. However, no better estimates are available, partly because most occupational disease is not diagnosed or recorded. More research is needed to identify the effects of harmful substances or combinations of substances whose interactions are suspected or unknown.³⁴

Barth and Hunt after discussing the 100,000 estimate mentioned above state:

It would appear that the NIOSH estimate represents a "quick and dirty" approach to the matter though the biases are not at all apparent.³⁵

But they later comment that despite the doubts raised about the estimate "... it would be inappropriate to dismiss it summarily," and then quote another estimate that occupational disease fatalities from cardiovascular, cancer and pulmonary conditions alone may range from 107,000 to 193,000, but with a large margin of error. Then other estimates are cited and they discuss the difficulty of the problem arising from the often long latency period which elapses before a condition manifests itself. Furthermore there are many cases where the work connection is never established or even considered. From all the evidence available it does seem clear that at the very least the problem is substantial and much greater than is generally recognised.

Locke quotes one authority -- Proceedings of the Chief Executive Officers' Workers Compensation Conference: Airlie, VA, June 1978, 213-237 -- as estimating that:

³³ *President's Report on Occupational Safety and Health*, (1972) Washington DC: USGPO, 111.

³⁴ *Making Prevention Pay: Final Report of the Interagency Task Force on Workplace Safety and Health*, (1978) Rosslyn, VA VI-17.

³⁵ Barth, P S & Hunt, H A, *Workers' Compensation and Work-related Illness and Disease*, (1982) Cambridge MA: MIT Press, 17.

- (1) if just two percent of all cancer fatalities were determined to be job-related, the number of workers' compensation death awards would double; and
- (2) if only one percent of all cardiovascular fatalities were found to be occupationally caused, the number of death claims awarded annually would triple.³⁶

In 1986, the New York State Legislature requested the Department of Community Medicine of the Mount Sinai School of Medicine of the City University of New York to evaluate the problem of occupational disease in the State. The findings of this detailed study are interesting as they not only give further confirmation at the extent of the problem and the yet unknown factors but some possible avenues for additional action are suggested. As well as assessing the nature, magnitude and costs of occupational disease, evaluating the clinical resources available for diagnosis and treatment, the study group was also asked to explore the need for and feasibility of establishing diagnostic and treatment services throughout the State.³⁷

The study confirms that existing data on occupational disease greatly understate the extent of the problem and it is estimated that deaths from occupational disease are 1.5 times those from accidents. Several sources of data were examined and compared and the 6 tables provided, give an annual incidence from as low as 3,765 cases to as high as 27,985. However as work-related cancer cases (estimated as 10% of total cancer cases) which were excluded from those figures, it is suggested that the range would more properly extend from 10,345 to 34,565. The State workforce is approximately 7.9m about 6 times that of New Zealand.

The following reasons are cited for the data being fragmentary and unreliable.

The occurrence of occupational disease is under-reported for a variety of reasons, including workers' fears of losing their jobs, employers' fears of legal and financial liability, lack of recognition by physicians of the occupational origin of a patients' condition, the fact that workers are often unaware of or cannot recall their exposure to dangerous materials, and the frequently long latency period that elapses between exposure and the development of recognisable symptoms of disease.³⁸

36 Locke, L, Adapting Workers' Compensation to the Special Problems of Occupational Disease, (1985) 9 *Harvard Environmental Law Review*, 249-282, 250.

37 Markowitz, M & Landrigan, P, The Magnitude of the Occupational Disease Problem: An Investigation in New York State, (1989) 5 *Toxicology and Industrial Health* 9-30.

38 Markowitz & Landrigan (1989) 17.

3.10 OTHER VIEWS

From Canada Ison considers that:

It is possible that the actual incidence of disablement from industrial disease could be several times that which would be indicated by the statistics of compensation claims. To begin with, there are several difficulties in obtaining medical opinion on diagnosis and etiology for deciding whether a disease should be classified as one resulting from employment. Occupational medicine has not actually been a significant part of the training of medical practitioners. However, many diseases and their etiology are not obvious from signs and symptoms alone. A reliable opinion on diagnosis or on etiology often depends upon a clinical finding being compared with occupational history. It is still fairly common to find, however, that a complete occupational history has not been taken by an attending physician, even in cases in which it might establish an industrial basis for the disease.³⁹

Clearly failure of an attending doctor to establish a link with the workplace will cause any statistics to understate the true position whether one is concerned with death or incapacity.

From the British scene a report on occupational health and safety statistics for the period 1988-89 comments: "[t]he statistical base of the HSE's knowledge of work-related illness is not yet as wide, nor as solid as it would like."⁴⁰ In the same issue it is reported that 1987 OECD disease statistics show an incidence varying from 1 in 100 employees in Sweden to 1 in 1,000 in France and the rates of compensated to 1 per 400 in Switzerland to 1 in 4,500 in Great Britain.⁴¹ The additional comment that "they demonstrate the variety of possible interpretations of the term 'occupational disease' and the difficulty of recording its extent." When set against the workforce of 22 million, the British figures would indicate an even lower incidence than that of New Zealand where 1 in 4500 would equate to a total of about 300 cases. Nevertheless in a discussion document issued by the British Health and Safety Executive there is a claim that "[e]ach year more people in the United Kingdom die from diseases caused by work than are killed by accident," though detailed information is lacking in the document.⁴²

39 Ison, T G The Dimensions of Industrial Disease, *Research and Current Series, No 35*, (1978) Kingston: Queens University, 2.

40 Health and Safety Statistics 1988-89, (1990) 98 (11) *Employment Gazette, Occasional Supplement No 1*, 1-61, 5.

41 Health & Safety Statistics (1990) 45.

42 Health and Safety Executive, *Collecting information on diseases caused by work*, (1988) London: Health and Safety Executive, 1.

3.11 THE RECENT UPSURGE IN OCCUPATIONAL DISEASE

Though the connection between disease and exposure to some substances has been known for many years, the great majority of occupational diseases are of fairly recent origin. Among the early victims with bladder cancer were workers engaged in the synthetic-dye manufacturing industry in Germany whose condition was reported by Rehn in 1895.⁴³ Since that date the chemical industry has greatly expanded and with that expansion has grown a much increased concern and, to a lesser extent, action by both industry and its regulators.

3.12 THE INCIDENCE OF OCCUPATIONAL DISEASE IN NEW ZEALAND

Three sets of statistics are available:

ACC claim statistics;

Department of Health Annual Reports until 1985;

Medical Statistics of hospital admissions and morbidity.

3.12.1 ACC CLAIM STATISTICS

Regrettably ACC statistics have been far from satisfactory. In 1985 ACC published an analysis of claims for 1983 and the statistics relating to occupational disease is set out in Tables 1 and 2. Some of the "agents" listed under the first heading will not be occupationally related. Drowning and electricity are strangely out of place in this classification. One difficulty that ACC faces is lack of adequate information in the claim forms and even medical certificates. From ACC's inception prompt payment of claims has always been a major objective. Accordingly so long as there was adequate evidence that there was injury by accident or a disease due to the nature of the employment, compensation is paid. Additional information which would have been required under a Workers' Compensation system to establish causation or a work connection is not sought, it being considered that it was not acceptable to create any unnecessary delay in making payments. An examination of a large number of ACC fatal claims made some years ago by the writer, revealed considerable deficiencies in the available information, with even the coroner's reports not being very helpful. These aspects apply only to injury cases as a work connection must be clearly established for disease claims. Out of 45,387 work-related claims in 1983, the following entries appear:⁴⁴

43 Hunter, D (1978) *The Diseases of Occupations* London: Hodder & Stoughton, 806.

44 ACC, (1985) 4 *Statistical Journal of the ACC*, 39.

TABLE 1

TOXIC OR ADVERSE EFFECT (OF) 1983

Medicinal agent	40
Lead or lead compound	22
Gas, fumé or vapour	241
Other toxic substance	15
Electricity	102
Drowning or non-fatal submersion	102
Other cause	<u>169</u>
Total	630

TABLE 2

OCCUPATIONAL DISEASE 1983

Leptospirosis	94
Occupational hearing loss	818
Brucellosis	14
Infectious hepatitis	31
Other	<u>59</u>
Total	1016

In 1988 ACC received 59,256 work-related claims, out of which only 1,126 were listed as due to occupational disease. These are set out in Table 3.

TABLE 3

OCCUPATIONAL DISEASE 1988

Inhalation diseases - asbestos/lead	81
Brucellosis	15
Dermatitis	232
Hepatitis	18
Leptospirosis	85
Other	<u>695</u>
Total	1126

Unfortunately though over half the claims are listed under "other", the 6 descriptions outlined above are the only codes then available in ACC statistics for occupational diseases. Nevertheless the wide disparity between the 1983 and 1988 figures listed under "other" indicates considerable inconsistency. However some 2,850 are recorded under the heading; Deafness/hearing loss. A more recent publication covering the statistics for the year ending 31 March 1989, does not include the heading "occupational disease." Of the total 58,076 work-related claims, Table 4 contains entries which appear under the heading "work injuries and diagnosis."

TABLE 4
OCCUPATIONAL DISEASES 1989

Inhalation diseases	129
Brucellosis	14
Dermatitis	317
Hepatitis	12
Leptospirosis	90
Other occupational disease	<u>646</u>
Total	1288

In addition 2,924 claims are listed under the heading "deafness/hearing loss while there are some claims which could fall into either category (injury or disease) such as "toxic/adverse effect.

3.12.2 DEPARTMENT OF HEALTH ANNUAL REPORTS

For many years the Department of Health published in its annual report statistics of occupational diseases reported. The last occasion that was done was in the 1986 (figures for 1985). Appendix III contains sample extracts from those reports for the period 1959-1985. It seems fairly clear that many of the variations over the years are due to changes in reporting, notification requirements, diagnosis, compensation factors (eg hearing loss) etc, rather than in the incidence of the diseases themselves. In earlier years, for example, it would seem that quite frequently brucellosis and leptospirosis were not diagnosed as such. With the high animal population in New Zealand prevalence of zoonoses is to be expected but in recent years brucellosis has largely been eradicated from dairy herds as the result of a massive programme of culling infected animals. While the use of vaccines has made substantial inroads into leptospirosis, though the presence of the disease in opossums continues to be a problem. Blackmore lists 27 zoonoses known to be endemic in New Zealand.⁴⁵

3.12.3 MEDICAL STATISTICS

The Hospital and Morbidity Statistics available in New Zealand are of no assistance. It is not possible to isolate data that refer to occupational diseases as they are based in the *International Statistical Classification of Diseases, Injuries and Causes of Death (ICD)* of the World Health Organisation. As Ng comments:

⁴⁵ Blackmore, D K, *Zoonoses in New Zealand Proceedings of the Ninth International Congress of Agricultural Medicine and Rural Health* (1984) Christchurch: Vol 1, mimeo.

The value of ICD is primarily for counting and classifying morbidity. Though the Manual contains a section on Classification of Industrial Accidents According to Agency, the ICD is seldom used in compiling occupational morbidity statistics. The ICD makes no reference to occupational diseases.⁴⁶

Later Ng remarks that, with the exception of statistics on pneumoconiosis, the ILO has never published national statistics on occupational diseases.⁴⁷ While it may be a relatively simple task to identify occupational diseases, that of distinguishing work-related diseases is a very different matter. A carcinoma of the lung, for example, may or may not be work-related. Any decision as into which category a particular case would ultimately fall, would not normally be within the sphere of those responsible for compiling the base data for medical statistics. Such decisions would be within the compensation arena and in another statistical base. Furthermore as mentioned elsewhere categorization would be based on proof under that legislation.

3.12.4 STATISTICS OF INDUSTRIAL ACCIDENTS AND DISEASES BEFORE 1974

Until 1973 the Department of Statistics published an annual statistical report of industrial injuries. However those reports does not give a sufficiently accurate picture of the extent of occupational disease in those years. Table 5 sets out the following entries which appeared in the miscellaneous category for 1973:

TABLE 5

Dermatitis	32
Leptospirosis, brucellosis	402
Tuberculosis	14
Caisson disease	1
Poisoning by alcohol	1
" " petroleum products	1
" " industrial solvent	4
Chemicals, acid, caustic, alkali	4
CO, coal, coke exhaust fumes	4
Other gas or vapour	162
Other or unspecified substances	23
Boils	102

It is likely that some of the above statistics would be properly included under the heading of "accidental injury," rather than "work-related disease." However there is no heading "Work-Related

⁴⁶ Ng, T K, Descriptive Occupational Morbidity Statistics, (1988) 41 (3/4) *World Health Statistics Quarterly*, 200-8, 201.

⁴⁷ Ng (1988) 203.

disease" or "Occupational disease." This would seem to be another indication of a lack of appreciation of the problem of work-related disease other than the traditional occupational disease like lead poisoning and dermatitis.

3.13 NEW ZEALAND COMPARED WITH FINLAND

The position in New Zealand could be contrasted with that in Finland where official statistics for occupational diseases and occupational injuries have been compiled since 1926. The Finnish Register of Occupational Diseases was founded by the Institute of Occupational Health as:

It was considered important that occupational diseases diagnosed in Finland be registered faster and more accurately than in the official statistics of the Ministry of Social Affairs and Health. The Institute of Occupational Health and the Federation of Accident Insurance Companies signed an agreement according to which the insurance companies provide the Register with data on every case reported to them as an occupational disease, regardless of their compensation decision. In this way the collection and processing of data could be speeded up. In addition, the data on occupational diseases diagnosed at the Institute of Occupational Health are transferred to the Register immediately after the cases have been diagnosed; hence the official decision to delegate responsibility for the statistics on occupational diseases to the Institute in 1975.⁴⁸

In 1984 Finland which has a working population just under 50% more than New Zealand reported 6,193 new cases of occupational disease by diagnosis in 1984.⁴⁹ This could be compared with the figures quoted in #3.12. One could reflect on Dr Garland's first endeavours to get more accurate statistics back in 1947 mentioned on page 23.

3.14 INADEQUATE DATA AND MARKET DYSFUNCTIONS

Lyndon points out that there are several consequences stemming from a lack of adequate data suggesting that:

The invisibility of chemical toxicity has destructive effects on the market for chemicals. If product quality cannot be gauged by consumers, the overall quality of products in the market will be affected. Buyers' inability to screen products removes any incentive for manufacturers to differentiate between toxic and nontoxic products and to screen before

⁴⁸ *Occupational Diseases in Finland in 1984*, (1984) Helsinki: Institute of Occupational Health, 5.

⁴⁹ *Occupational diseases in Finland* (1984) 14.

production. The result is a higher level of toxicity in products than would result if toxicity were a visible characteristic. Chemical products with lower toxicity will be penalized by the presence in the market of some unknown number of toxics.⁵⁰

3.15 AN AWARENESS OF OCCUPATIONAL HEALTH ISSUES IS LACKING

Historically, in New Zealand, as elsewhere, our legislation, regulations and other safety measures have been preoccupied largely with the prevention of traumatic injury and the physical aspects of the work environment. The principal inspectorate, that of the Department of Labour did not have the necessary expertise to deal with most occupational health issues and, until relatively recently, had to rely entirely on personnel from the Department of Health for technical and scientific support.

Logically one could first question why the health effects of the working environment have been so long the Cinderella of the occupational health and safety scene. After referring to the success that environmentalists have achieved in galvanizing large segments of the public to supporting their concerns and the lack of appeal about various aspects of the occupational health problems Schroeder, in writing on the American scene, comments:

Another reason for the lack of public concern about occupational illness is fundamental ignorance about its scope and dimensions. One of the greatest obstacles to effective regulation of the risk of occupational disease is the lack of information available to the public about the substances to which workers are exposed. While thousands of chemicals are used in the workplace, only a relatively few have been the subject of scientific studies to determine their toxicity. Research into harmful effects of chemicals and dusts is expensive, and few entities other than the federal government have either the incentive or the resources to provide funding for extensive studies. Moreover, methodological difficulties inherent in the available types of research make translation of the results of studies into estimates of risk to humans at given levels of exposure uncertain.⁵¹

And later:

As a result it is impossible to predict the extent of and severity of occupational disease. While some observers foresee an impending public health catastrophe of monumental

⁵⁰ Lyndon, M L, Information Economics and Chemical Toxicity: Designing Laws to Produce and use Data, (1989) 87 *Michigan Law Review*, 1795-1861, 1814.

⁵¹ Schroeder, E P, Legislative and Judicial Responses to the Inadequacy of Compensation for Occupational Disease, (1986) 49 *Law & Contemporary Problems* 151-182, 152.

proportions, others assert that the current asbestos crisis will turn out to be the worst case and the overall incidence of death from occupational disease will be relatively low.⁵²

Schroeder then proceeds:

... on the assumption that the occurrence of occupational disease will continue to pose a major public health problem for the foreseeable future.⁵³

In the absence of any evidence to suggest that the concerns that so many express are overstated, then it is logical to adopt Schroeder's point of view and avoid any suggestion of complacency.

3.16 THE LINK BETWEEN OCCUPATION AND ILLNESS

Inattention to the health hazards that some workers have faced over the years has resulted in many workers suffering a painful and debilitating illness sometimes even death but which may occur only many years after the first exposure to the toxic or other harmful substance. Possibly the most notable illustration is the frequent reference to the many deaths that have yet to occur, to those who have had the misfortune to have been exposed to asbestos at some time in the past, often many years ago. This is a direct result of the hazards of asbestos not being sufficiently appreciated. Stapleton quotes the view of a leading epidemiologist Peto who estimated that:

... the current overall death rate due to asbestos in Britain is about 1,000 per year, a figure which can be expected to peak at about 3,000, so that over the next thirty years 50,000 people in Britain will die from this one man-made cause.⁵⁴

While for all those victims who have yet to meet their fate nothing can be done, as their time-clock is already ticking, there is, nevertheless, a clear need to be alert lest the continuing use of other substances may be initiating another time-bomb. Only slowly has the link between illness and work become more widely recognised.

The other side of the picture is the changes that have taken place in our workplaces over the years, aside from any regulatory requirements. Having been closely involved in observing those developments for many years, there can be no doubt that today one can report much improvement. Worldwide there has been considerable growth in the preventive effort, though, often, the awareness of health hazards still trails well behind. Even with the founding of the National Safety Association of New Zealand Inc by the Workers' Compensation Board in 1953, the emphasis was almost exclusively on injury

⁵² Schroeder (1986) 153.

⁵³ Schroeder (1986) 153.

⁵⁴ Stapleton (1986) 8.

prevention. When the Accident Compensation Commission took over the role of the Association in 1975, that was still the position. The reason for this is not difficult to determine. Apart from a few professionals in the Health Department and a small number of medical practitioners specialising in occupational health, expertise was lacking and the influence of the few was thus considerably restricted. Furthermore expertise was also lacking both in the Government inspectorates and the field staff of the National Safety Association and later the ACC. While the Association ran a number of short courses on various aspects of safety and elementary though those early efforts were, they played an important role in creating a greater awareness of occupational safety. In time these courses also covered aspects of occupational hygiene making use of the health professionals in the field.

From this activity it was no doubt a natural step for the Occupational Safety Advisory Committee of ACC to advocate that the Commission (as it was then) fund the development of tertiary education covering the more advanced technical and scientific aspects. With the funding of a diploma course in safety management at Massey University, subjects such as, toxicology, ventilation, air pollution, fire and explosion, corrosion, radiation, ergonomics, hazard identification and analysis, etc were taught in some depth to a wider constituency for the first time.

3.17 SURVEILLANCE OF OCCUPATIONAL DISEASES

The surveillance of occupational disease has not been a real priority in New Zealand despite the efforts of Garland from 1947. Furthermore there has never been any attempt to link hazard surveillance with disease surveillance. Though difficulties with the reporting of work-related diseases have been recognised, no real effort has been made to overcome those problems. Recently the possibility of establishing a register of all who may have been exposed to asbestos has been investigated but more extensive approaches are needed. One could immediately think of agricultural chemicals. Implementing a register would involve getting the names of all persons exposed to a particular substance covering such matters as the duration of the employment involving exposure, the extent of the exposure, the results of any monitoring carried out, disease records, medical examinations etc. Appendix V sets out "Hazard Surveillance Recommendations for OSHA."

A most encouraging sign is to be found in the 1991-92 Business Plan of the Occupational Safety and Health Service of the Department of Labour which envisages an Occupational Disease Register. The following assumptions are given:

- * There is a need to record and provide access to a data base of persons suffering from an occupational disease to enable follow-up (particularly with long latency, eg Asbestos).

- * That the Government will proceed with occupational safety and health reform and pass the Occupational Safety and Health Act.
- * That it is impracticable to operate an effective occupational disease register without using ACC as a point of entry.⁵⁵

3.18 POSSIBLE SOURCES OF DATA

In the United States, where the extent of work-related diseases is very much debated, the following data sources have been suggested:

Death certificates;
 Cancer registries;
 Workers' Compensation systems;
 Hospital discharge records; and
 Ad hoc surveys.⁵⁶

The same authors conclude with a suggestion that diseases with long latency would be better identified through death certificates while those with short latency may be identified through doctors' records but then caution:

Finally these surveillance data should be used to identify and prevent occupational disease. The results of surveillance must be used by groups that conduct detailed field evaluation of occupational health problems because field identification and measurement are necessary first steps in the prevention process.

Prevention programs must be implemented in conjunction with surveillance systems. Our failure to develop better occupational disease surveillance may be due in part to a lack of demand for facility-specific disease data. Current programs for controlling occupational risks should be evaluated with respect to their requirements for medical monitoring and disease reporting. Furthermore, agencies responsible for controlling occupational disease should evaluate the use of surveillance data for targeting workplace inspections.⁵⁷

⁵⁵ *Occupational Safety & Health Service: Business Plan 1991-92*, Wellington: Department of Labour, 18.

⁵⁶ Melius, J M, Sestito, J P & Seligman, P J *Occupational Disease Surveillance with Existing Data Sources*, (1989) 79 *American Journal of Public Health, Suppt* 46-51.

⁵⁷ Melius et al (1989) 51.

A companion paper comments that a hazard surveillance strategy as with disease surveillance is developed in three steps:

data collection, including information and industry demographics, patterns of chemical use, and workplace exposures;
method development and data analysis; and
preventive action.⁵⁸

The paper also contains the conclusions of an unpublished report of a NIOSH task force:

The surveillance of hazards and diseases cannot proceed in isolation from each other. The successful characterization of the hazards associated with different industries or occupations in conjunction with toxicologic medical information relating to the hazards can suggest industries or occupational groups appropriate for epidemiologic surveillance.

Conversely, unusual health patterns in certain industries or occupations elucidated by surveillance of health effects will be more fully explained by surveillance of potentially causative agents. A few disease entities are sufficiently cause-specific to diminish the need for hazard surveillance. Some agents are sufficiently effect-specific to make the task of illness surveillance relatively straightforward. There is a vast middle ground where exposures are complex and health effects diverse, that lends to resolution only through the combined efforts of cause-and-effect surveillance.⁵⁹

Refer to Appendix V.

Clearly it is to that difficult middle ground that more attention should be paid. It is a matter of regret that the Injury Prevention Research Centre that has been established jointly by the Accident Compensation Corporation and the Health Research Council at the University of Otago, appears to be concentrating on injury research, and it is no doubt implicit in the terms of reference that it will range over the whole injury field not confining the research to the workplace. Laudable as the project is, there is an obvious need for its terms of reference to extend to work-related disease. The desirability of segregating occupational diseases in the national hospital and mortality statistics cannot be questioned but without the work-related diseases being identified as such, a misleading impression would be created.

58 Froines, J R, Wegman, G & Eisen, E Hazard Surveillance in Occupational Disease, (1989) 79 *American Journal of Public Health*, Suppl. 26-31, 26.

59 Froines et al (1989) 26.

3.19 CONCLUSIONS WHICH CAN BE DRAWN

It is indisputable that if greater attention is to be paid to the health problems of New Zealand workplaces, then much more information is needed about their extent and nature. Unfortunately lack of adequate information about the extent of work-related disease and a want of action would seem to be two sides of the same coin, with each deficiency reinforcing the other.

One can assume that the vast majority of earners who can prove to the satisfaction of ACC that their condition is work-related will receive Accident Compensation. Unfortunately ACC compound the problem of inadequacy of data with their narrow range of statistical classifications and should be strongly advised to increase the number of headings under which occupational and work-related diseases are coded. Additionally the Health Department should strengthen its requirements for the reporting of occupational and work-related diseases. Probably of paramount importance, however, would be moves to improve the diagnosis of work-related diseases in the first place. Without better diagnosis it is difficult to envisage a real improvement in the total coverage of occupational disease statistics.

The National Morbidity Statistics need upgrading to remove the shortcomings referred to by Ng in #3.12.3. The greatest gap may well be in the diseases which, though work-related, are not recognised as such by the attending doctor. The recommendations concerning the linking of surveillance of health hazards with disease surveillance also need to be heeded. In addition as a great deal of education is a clear necessity. It is suggested that this and the matters outlined above may only be satisfactorily met with by the establishment of the Institute of Occupational Safety and Health as recommended by the Advisory Committee on Occupational Safety and Health (ACOSH). Another essential need is for there be more co-operation between the agencies concerned with the health effects of work. With the devolution many of the former functions of the Health Department to the area health boards, this becomes a matter of even greater urgency. One could seriously question whether the much reduced Department of Health and the area health boards have adequate resources to undertake that function. At the time of writing further reorganisation is taking place. In all this the part played by the gatekeepers of the system -- the doctors -- is crucial for unless they recognise a possible work connection with an individual case, no improvement in any data collection will follow. Some will maintain that the answer lies with the medical schools but is that view too simplistic? Such a move would, of necessity, have to compete with other similar requests for a place in an already crowded and lengthy curriculum. Nevertheless considering the increasing numbers in the workforce combined with a growing concern

about the environment, a compelling case can be made for all environmental health hazards to be given a more prominent profile. It seems logical to seek the co-operation of influential members of the profession; possibly the Royal College of General Practitioners and College of Community Medicine.

Having identified the major health problems in the working environment one needs then to identify the source of those problems.

CHAPTER 4

SOURCES OF THE PROBLEMS

4.1 THE ISSUES INVOLVED

It is not enough merely to identify the health problems of the working environment. It is equally important to establish the hazards that cause or *exacerbate* such problems. While responsibility for the safe use of hazardous substances lies with those who manufacture, use or handle these materials, nevertheless considerable reliance is placed on the government agencies to ensure adequate dissemination of necessary data and information and also to set standards, either regulations or codes of practice. Clearly there is an initial obligation on the manufacturers, importers and suppliers but experience has shown that this cannot always be relied on. The degree of possible toxicity or other hazard is often a matter of some question and the presence of a well-informed and independent agency is an essential element in the total preventive approach. Many substances are known to be harmful to humans and in most cases the potential for harm differs with the extent of exposure. Those which probably raise the greatest concern are the carcinogens.

4.2 CHEMICALS IN USE IN INDUSTRY

There is frequent reference in the literature and in public debate, to the vast number of chemicals in use in industry and the environment. In addition there are various estimates of the number that are considered to be hazardous as well as those suspected of being carcinogenic. A meeting of experts on harmful substances convened by the International Labour Organisation in 1987:

... estimated that there are between 5 million and 7 million known chemicals, including combinations and those that have been computer formulated, no more than 70,000 to 80,000 of these are in fact on the market, with a thousand or so being produced in any substantial quantity.¹

The report then mentions that about 1,000 to 1,200 new chemicals were developed in North America each year. Since half of these were polymers or compounds, by Western European standards only 500 would have been classified as new chemicals. In Western Europe some 150-200 new substances are registered each year but this figure is expected to double in the near future. The report continues:

¹ *Safety in the use of chemicals at work*, Report VI (1) (1988) Geneva: ILO, 3.

Experts have indicated that 5 to 10 per cent (i.e. 3,500 to 8,000) of the marketed substances should be considered hazardous and, in addition, 150 to 200 of these are considered to be carcinogenic. However, occupational exposure limits (OELs) have been established for only a fraction of the chemicals in use. The 1988 third revised edition of the International Labour Office Compilation of OELs lists more than 1,200 chemical substances for which exposure limits have been adopted by various countries.²

Lyndon, referring to the United States scene, quotes sources stating that some chemicals have a short lifespan in the market with the average about 5 years. Many are produced in limited quantities with 70% of all chemicals having a production run of less than 100,000 pounds.³ This is just another indicator of the difficult problem presented by the use of chemicals both in industry and the community.

As the majority of chemicals in use in New Zealand are imported, we have to rely from the overseas manufacturers for information regarding possible toxicity, other important aspects and characteristics. Thus there is a need to monitor developments in the countries of origin. This is further discussed under the heading: "Right to Know" in #9.7.

4.3 RISK ASSESSMENT

Having identified and quantified a hazard the next step is to assess the risk.

Hazard: A source of risk, peril; the potential for an unwanted release of energy to result in personal injury or property damage.

Risk: Mathematically, expected loss; the consequence or loss resulting from an accident multiplied by the probability of its occurrence during a stated period of exposure.⁴

Considerable attention has been given to substances that are suspected of being carcinogenic, mutagenic or teratogenic. The difficulty is that though many substances already in use are under suspicion, relatively few have been definitely accepted as actually being carcinogenic. The task of either proving or disproving that any substance is carcinogenic or otherwise harmful to man is no light one.

2 Safety in chemicals 3.

3 Lyndon, M L, *Information Economics and Chemical Toxicity: Designing Laws to Produce and use Data*, (1989) 87 *Michigan Law Review*, 1795-1861, 1800.

4 Briscoe, G J, *Risk Management Guide* (1982) Idaho Falls: System Safety Development Center, v.

While it is possible to incriminate a particular chemical or substance on reasonable evidence, on the other hand, it is quite a different matter to clear a substance with any degree of assurance, especially if the substance is of recent origin or little used. The result is that many remain on the suspect list. Barth and Hunt record that of the 25,000 toxic substances listed by National Institute of Occupational Safety and Health, 2,415 are identified as suspect carcinogens.⁵

Another trap is the part that emotion may play particularly through sustained media pressure. Thus it is very questionable whether standards instituted in response to a public demand will necessarily result in the most needed and most effective standards. As Haddon et al comment:

... the history of safety legislation also demonstrates that costly safety devices or regulations can be most swiftly and effectively forced upon a specific industry ... by a public that has been outraged by a specific disaster or by a widely publicized death toll ... In the absence of such disaster, the public as a whole appears to have been largely unwilling to assume the cost of countermeasures when lives to be saved or lost are the cumulative result of many accidents widely distributed in time and location.⁶

The key to Haddon's comment lies in the last line and fortunately disasters resulting in multiple injuries are rare though it is more difficult to rouse public interest in a series of unrelated incidents. In recent years in New Zealand, while there has been little comment on the number of work-related injuries and diseases, there has been much comment about the escalating cost of Accident Compensation. In the executive summary of the recent White Paper on Accident Compensation there is frequent reference to cost but the only mention of prevention is "[t]he need to avoid duplication of effort."⁷ From that comment, a completely unwarranted assumption could be drawn that there was too much preventive activity. However there is later reference to experience rating and "the provision of risk management advice."⁸

5 Barth, P S & Hunt, H A, *Workers' Compensation and Work-related Illness and Disease*, (1982) Cambridge MA: MIT Press, 48.

6 Haddon, W, Suchman, E & Klein, D *Accident Research: Methods and Approaches*, (1964) New York: Harper & Row, 7.

7 Birch, Hon W, *Accident Compensation: A Fairer Scheme*, (1991) Wellington: Minister of Labour, 5.

8 Birch (1991) 62.

4.4 THE PUBLIC PERCEPTION OF RISK AND ITS INFLUENCE

Many factors may influence our perception of risk – ignorance, fear, the media, recent disastrous events, etc. Where fatalities arise in large numbers as a result of a single event, they cause much more public concern than those occurring individually or in small numbers but widely separated in time and location, even though in the total, they may be substantial. As Schroeder puts it:

The death of one person on an amusement park ride or of 114 people in a hotel collapse can generate headlines and sustain public interest for a while, but the projection that at least 350,000 people will die from asbestos related cancers in the next 45 years has not received the same widespread attention. Periodically, the hazards of exposure to toxic substances do become the focus of concern, particularly when the exposure is perceived as affecting a large segment of the public, but occupational exposures, which can present the greatest risk of disability or death because of their duration and intensity, are rarely a focus of concern.⁹

Events such as Flixborough, Serveso, Bhopal, Three Mile Island and Chernobyl are fortunately rare. Though a repetition of such cannot be ruled out, that possibility must be considered in its proper context. Hence it is clear that the assessment of risk cannot be left to an unscientific approach based on hunches, intuition or even personal prejudice. Refer Arbous p 132.

Haight is very scathing of the possible influence of public perceptions on regulatory agencies. Though his field is that of traffic safety nevertheless many of the points he makes are of more universal application, as is his comment that:

In general the influence of the public, whether directly or through political institutions, has been pernicious to traffic safety. It comes and goes, filling in the troughs between peaks of more exciting events; it seizes on issues without concern for the relevance or tractability of the problems; it proposes "solutions" that are at best naive and at worst absurd; and it demands action even where action may be a waste of money.¹⁰

One must also bear in mind that publicity can often stem from vested interests. There is a lack of investigative reporting on occupational health and safety and very little on Accident Compensation.

⁹ Schroeder, E P Legislative and judicial responses to the inadequacy of compensation for occupational disease, (1986) 49 *Law & Contemporary Problems*, 151-182, 151.

¹⁰ Haight, F A, Road Safety: A Perspective and a New Strategy, *Journal of Safety Research*, 91-98, 95.

In an interesting study several groups were asked to estimate the risks of various activities and products and to rank them in order of risk and to assign risk values to them.¹¹ For one group the range of risk perceived by their members was 15 to 1 (nuclear power to vaccinations). The actual range based on estimates of deaths was 100,000 to 1 (smoking to food colouring). If only known statistical values were used then the range would still be 2,500 to 1, some 170 times greater than that perceived by the group. From that study the following observations arose:

- 1 The public has little knowledge of actual risk values which are, in fact, fairly well known to statisticians and risk analysts.
- 2 Reading about risk distorts risk perception. For example, football and nuclear power being much in the news are grossly over-estimated.¹²
- 3 Estimating a societal or average risk of an activity involving a small percentage of the population generally required a detailed analysis to avoid over-estimating the risk.
- 4 There is a strong aversion to catastrophic risk. [in other words the probability of a catastrophe such as a nuclear melt-down will be greatly over-estimated]¹³

In similar vein in another paper Slovic *et al* conclude:

The research described in this paper demonstrates that judgement of risk is fallible. It also shows that the degree of fallibility is often surprisingly great and that faulty estimates may be put forth with much confidence. Since even well-informed lay people have difficulty in judging risks accurately, it is tempting to conclude that the public should be removed from the risk assessment process. Such action would seem to be misguided on several counts ... Even if the experts were much better judges of risk than laypeople, giving experts an exclusive franchise for hazard management would mean substituting short-term efficiency for the long-term effort needed to create an informed citizenry.¹⁴

Thus once hazards and potential hazards are identified, the estimation of risk can only be adequately undertaken if subjective factors are reduced to a minimum. Even then, every endeavour must be made to ensure that they are based on the soundest possible evidence and made by persons best equipped to

11 Fischhoff, B, Slovic, P, Lichtenstein, S, Read, S & Combs, B How Safe is Safe Enough? A Psychometric Study of Attitudes Towards Technological Risks and Benefits (1973) 9 *Policy Sciences*, 127-152.

12 After Chernobyl the authors may have made a different assessment, though research by Lindell and Perry suggests that the effects of Chernobyl may be far less than popular opinion would suggest. Lindell, M K & Perry, R W, Effects of Chernobyl Accident on Public Perceptions of Nuclear Plant Accident Risks, (1990) 10 *Risk Analysis*, 393-399.

13 Briscoe (1982) 16.

14 Slovic, P., Fischhoff, B. & Lichtenstein, S. In R.C. Schwing & W.A. Albers, (Eds.), *Societal Risk Assessment: How safe is safe enough?* (1980) New York: Plenum Press, 212

make them. A major difficulty lies with high hazard risks which have an extremely low probability but with a potential for disaster. Unfortunately probability, especially low probability, is not well understood let alone appreciated. As Paulos points out, this is particularly the case where it is confused with coincidence.¹⁵ Furthermore experts do not operate in a political-free or value-free vacuum. Industry's questionable contribution is discussed later in #4.10.

4.5 ESTABLISHING THE LINK BETWEEN DISEASE AND WORK

As Lyndon points out "[r]esearch on chemical health effects has not kept pace with chemical production and dissemination."¹⁶ This lack of adequate data makes the task of establishing the link between exposure to a suspected contaminant a more difficult task. Rarely is this as straightforward as was that of the vinyl chloride workers referred to on p 40. Epidemiological studies provide one method of linking a particular disease with a work situation. As was the case with the vinyl chloride workers these studies rely on pinpointing an excess of observed over expected cases and the higher that ratio the more likely it is that the work exposure could be incriminated. While such a study could suggest that the disease incurred by a particular group of workers was work-related, it could not be specific with respect to an individual. As the World Health Report explains:

Self-evidently the demonstration that the etiology of a multifactorial disease is partly occupational becomes more difficult, the smaller the etiological fraction. The value of the etiological fraction of an occupational exposure in the causation of a disease can be computed from the following formula:

$$EF = (RR-1)/RR$$

where EF = etiological fraction and RR = rate ratio (or relative risk). For example, if there is a fourfold increase in bronchitis in a dusty job compared with a non-dusty job, then:

$$EF = (4-1)/4 = 3/4 = 75\%$$

ie, 75% of the bronchitis seen is caused by dust exposure.¹⁷

15 Paulos, J A, *Innumeracy: Mathematical Illiteracy and its Consequences*, (1988) New York: Vintage Books, 33.

16 Lyndon (1989) 1802.

17 World Health Organisation, *Identification and Control of Work-related Diseases: Report of a WHO Expert Committee*, Technical Report Series 714, (1985) Geneva: WHO. 36.

While such a calculation will indicate that there is a dust problem to be attended to, a dilemma still remains for the compensation claimants who may be incapacitated by dust. Theoretically, in the above example, only 75% of the claimants will have contracted a work-related disease and be entitled to compensation but it is impossible to determine which are the 75%. Some compensation jurisdictions in the United States will solve the matter by determining that all are entitled to compensation but with compensation reduced to a percentage equal to the etiological fraction. In other words using the above example, instead of 3 out of 4 being fully compensated, all will be compensated but at a 75% level. The only other alternative would be either to refuse compensation to all through lack of proof that the disease of the individual concerned was work-related or accept an assumption that, as the majority of such cases were work-related, all should be compensated. While it could be easy to accept the latter approach when the etiological fraction was quite high, there will be many cases when that fraction could be low. The only real solution from a compensation viewpoint is to remove the distinction between work-related and non-work-related diseases; a situation towards which New Zealand did appear to be moving and which Weiler in his report to the Ontario Provincial Government anticipates.¹⁸ However the recent White Paper on Accident Compensation did not address this issue apart from reducing benefits payable for injury.¹⁹ Refer to the comments on p 186 on the 1989 Budget speech.

From a preventive point of view, however, any indicator other than a very small etiological fraction gives a clear signal for action. Past experience with reporting systems as outlined in the previous sections is not very reassuring indication that any new reporting system will provide adequate data.

4.6 BIOASSAYS

Another widely used method to test possible toxicity is that of bioassays using laboratory animals and exposing them to concentrations of the substance under review. This then involves observing the exposed animals to establish the presence of any adverse health effects. Time constraints require high exposures to be made over short time-spans and this method proceeds on the basis that if, for example, tumors develop in the animal, they may well do so in humans and vice versa, but this is not always the case. Such studies present difficulties when there is a long period of latency between the exposure and the onset of the disease, and with diseases caused by the interaction between two or more chemicals, and probably diseases caused by low exposures.

18 Weiler P, *Reshaping Workers' Compensation for Ontario*, (1980) Toronto: A Report submitted to the Minister of Labour, 137.

19 Birch (1981).

4.7 THE CONTRIBUTION OF EPIDEMIOLOGY

Epidemiology is concerned with the statistical correlation of human exposure and disease symptoms in order to indicate the prevalence or otherwise of disease in an exposed group. An example of an extreme case is that of the vinyl chloride workers referred to on p 40 but such convincing evidence would not be very common. However, as Lyndon has warned:

But even in work settings, epidemiological data suffer from many confounding factors including, multiple exposures, undetermined exposures, and poor record keeping. Also, the latency periods of some diseases are twenty years or more, longer than many chemicals have been in use. However, while it is of limited sensitivity and cannot easily detect low incidences of disease, epidemiology may confirm human carcinogenicity.²⁰

Lyndon then draws attention to the high cost of both epidemiological studies and bioassays commenting that "[f]irms will be reluctant to make substantial investments in research that produces uncertain health data, instead of new products."²¹ The importance of this from New Zealand's point of view is the tremendous dependence that must be placed on this, at times, often uncertain research that is conducted overseas.

Becker and Coye set out the three methods used to determine the relationship of human exposure to a potentially carcinogenic material; epidemiological studies, long-term animal studies and short-term tests *in vitro*.

Epidemiology ... provides the foundation for measures designed to prevent cancer. The major strength of epidemiological studies is the focus on human populations, avoiding extrapolations from whole animal or short term *in vitro* screening methods. Epidemiological studies of cancer prevalence throughout the world suggest that for total cancer the variation may be as much as three-fold, whereas the range of rates for certain anatomical sites may vary one-hundred-fold. Although some of this variation may have a genetic basis, a major role for occupational factors has clearly been demonstrated. Although we must learn much more about the factors responsible for geographic and temporal variations of cancer incidence in the general population, epidemiological studies tend to confirm that cancer results from the combined effects of multiple exposures and unique susceptibility states.²²

²⁰ Lyndon (1989) 1812.

²¹ Lyndon (1989) 1812.

²² Becker, C E & Coye, M J, *Cancer Prevention Strategies in the Workplace*, (1986) Washington DC: Hemisphere Pub, 4.

The authors then go on to stress the tremendous problems in making any assessment of risk irrespective of the method adopted while, at the same time accepting that many more agents will be identified as carcinogenic by animals than by short term tests or epidemiology. They continue:

There are currently approximately 86 compounds used in occupational settings which are carcinogenic in animals. Only 18 agents have sufficient evidence of carcinogenicity in humans; 33 are considered probable carcinogens in humans. Fortunately, the concordance between human and animal studies is probably acceptable. Yet animal studies have substantial limitations. A standard bioassay of two exposures in males and females with two different species of 60 animals each involving 500 rodents will cost some \$500,000. Thus a standard bioassay is a major financial and scientific undertaking ... only cancer risks of the orders of one in ten at a maximum tolerated dose can be established definitively by bioassays.²³

They then pointed out that all participants at the conference they attended, were concerned that in focusing attention on life style factors such as smoking, alcohol and diet, this may ignore the importance of the workplace as a hazardous environment. With the primary means for preventing occupational cancer being eliminating exposures, it is still very difficult to define a safe level of human exposure to any suspected carcinogen. Thus there is a critical need for more research to assist us in preventing cancer associated with workplace exposure and for policies to reduce occupational exposures while this research is carried out.²⁴

Doll emphasises that, though the value of laboratory tests before a chemical is introduced into industry should ensure that the introduction of powerful new agents will not lead to major epidemics, the tests are far from foolproof. He considers it hardly practicable to eliminate altogether the use of the many agents that are positive in only one or two tests, and suggests that epidemiological observations continue to be needed:

- (i) to discover risks that have been overlooked or suggested only tentatively by laboratory tests,
- (ii) to check the correctness of conclusions about the cause of a hazard by monitoring the effect of its removal, and

23 Becker & Coye (1986) 5.

24 Becker & Coye (1986) 8.

- (iii) to estimate the level of exposure that produces the highest additional risk of disease that is socially acceptable.²⁵

He then warned that he did not consider that epidemiology could:

... show that an agent is not carcinogenic to humans as that is, in principle, impossible -- but so it is with laboratory studies as well. In practice, it is one of epidemiology's most important uses, but is implicit in the third purpose. For a time comes, with the collection of human data, when the existence of any material hazard can be postulated only from such heavy exposure that any likely exposure can be regarded as essentially safe.²⁶

While most attention is focussed in the assessment of potential risks, one of Doll's concluding comments is also of importance, namely:

... the social value of our work will depend also on our ability and willingness to give a clean bill of health to agents that have been incriminated on inadequate grounds and to commit ourselves to certifying their practical harmlessness.²⁷

The latter task must be an even more daunting one for with the considerable limitations to the technology available, even stronger proof will be needed to clear an agent of any incrimination.

4.8 BALANCING THE EVIDENCE: SCIENCE'S DILEMMA

Peto (1980) in criticising some aspects of Epstein's *the Politics of Cancer* called for a balanced view deploring the fact that "[t]he politics of cancer are becoming increasingly polarized."²⁸ He considered that this was due to the scantiness of reliable data stating that:

... each side takes a very extreme position. Industry usually argues for the irrelevance to man of animal or *in vitro* cancer tests, or minimizes the quantitative hazards and exaggerates the costs of control. The environmentalists usually exaggerate the likely hazards and are largely indifferent to the costs of control. The vacuum of reliable scientific knowledge is such that each side can find scientists who will maintain in courts, in public hearings or in scientific literature whatever is politically convenient, and it is important to recognise that scientists on both sides of this debate now have career interests at stake in it.²⁹

25 Doll, R, Occupational Cancer: A Hazard for Epidemiologists, (1985) 14 *International Journal of Epidemiology*, 22-31, 22.

26 Doll (1985) 22.

27 Doll (1985) 31.

28 Peto, R, Distorting the epidemiology of cancer: the need for a more balanced overview. (1980) 284 *Nature*, 297-300, 297.

29 Peto (1980) 297.

Peto, however, appreciates why Epstein and others like him take the stand they do:

My criticisms of Epstein's science, however, must be viewed in the light of the continued resistance of many industries to reasonable controls. One has only to read some of his descriptions of industrial behaviour to see where his passion comes from, and a suitably sceptical reader could derive much important information from the dozen or so detailed case-histories of particular carcinogens that make up the bulk of this book.³⁰

When so much of research is funded by industry, as is the case in the United States, it is no doubt difficult for researchers to maintain objectivity and neutrality. Refer to #4.10 and the comments of Castleton and Ziem on p 231. Peto after referring to the great deal of excellent research that is done by many industrial scientists has this warning note:

But so many examples of financially-motivated bias exist that the motives and work of industrial scientists and consultants are inevitably distrusted.³¹

Ibsen's Dr Stockmann sets a standard of probity which it is hoped that other medical practitioners and scientists employed in industry will adhere.³² Unfortunately there is much in the literature which suggests that Dr Stockmann's worthy example, made at great personal sacrifice, is not followed in many cases.

4.9 NEW ZEALAND'S RELIANCE ON OVERSEAS RESEARCH

With the vast majority of the hazardous substances used in New Zealand being imported and our very limited ability to undertake any research into possible toxicity, including bioassays and epidemiological studies, it is inevitable that reliance must be placed largely on the information that is available overseas. That being so it is also logical to be aware of the various influences that can affect decisions about the desirability and extent of regulations made elsewhere. As so much of the information with which are determined estimates of toxicity are based is American, this is a matter of some importance. As one Canadian writer put it the "due process-itis which plague the American regulatory scene" is to be avoided.³³ While this has no direct relation to New Zealand conditions, nevertheless considering our

30 Peto, (1980) 300.

31 Peto (1980) 297.

32 Ibsen, H, *A Public Enemy*, A play translated by P Watts written in 1882, (1973) Penguin.

33 Doern, G B, Prince, M & McNaughton, G, *Living with Contradictions: Health and Safety Regulation in Ontario*, (1982) Toronto: Royal Commission on Matters of Health and Safety Arising from the Use of Asbestos in Ontario, 5.3.

dependence on overseas research it can affect us indirectly. Before OSHA can promulgate a regulation it may have to justify it in the courts. The restraints that such a procedure poses will be evident in the relatively few regulations concerning the health effects of the working environment that OSHA has been able to introduce since its inception in 1971 and why there are not more leads that New Zealand could profitably consider. By the end of 1980 OSHA had completed regulations for only 23 toxic substances.³⁴ Admittedly some of the delay in finalizing regulations was due to OSHA seeking to implement the more expensive engineering controls rather than the cheaper personal protection. Refer to #7.11.2.

New Zealand needs to have a centre of expertise to provide information, monitor research, assist with education and training and maintaining contact with similar institutions overseas; a National Institute of Occupational Health and Safety.

4.10 INDUSTRY'S QUESTIONABLE CONTRIBUTION

In its drive to develop and market new products it is not in an industry's interests to spread doubt about a product which is hoped will become a profitable venture. It is true that many instances could be cited where products have been taken off the market on the grounds that they are unsafe or have other undesirable features. The recent move to environment friendly aerosols is a case in point. Then there are instances where the toxicity of a substance has become well established but has simply been ignored; asbestos for example. Selikoff reports:

In the United States, the first cases of asbestos-related disease came to light with the Pancoast study in 1918 ... the first asbestos-related lung cancer was reported in 1935. However, no standard for asbestos exposure was set nor regulations made. Guidance was offered -- voluntary guidance -- but this was not utilized.³⁵

On the other hand there is ample evidence of cases where evidence of adverse health effects have been deliberately suppressed or at least very much understated.

Vinyl Chloride would appear to lie in the latter category. As Livock states:

³⁴ Schroeder, E P & Shapiro, S A, Responses to Occupational Disease: The Role of Markets, Regulation, and Information, (1983-1984) 72 *Georgetown Law Journal*, 1231-1309, 1257.

³⁵ Selikoff, I J, Carcinogenic Risk Management in the United States, (1979) 363 *Annals of the New York Academy of Sciences*, 283-293, 292.

... the history of vinyl chloride health problems could be re-written from 1949 when a Russian study showed evidence of liver disorders amongst PVC workers. Similar evidence was uncovered by a study of Rumanian workers but it was in 1961 that the U S chemical giant DOW had the results of its own animal tests and faced the recommendation from its own scientists to limit human exposure to 50 ppm.³⁶ This was contradicted in 1963 by another study which carried out tests at higher concentrations. However, the authors denied that any health significance could be attached to their scientific results. Yet the TLV was set at 500 ppm in order to give the rest of the plastics industry a guide to safety margins involved and thus the problem remained in scientific hands.³⁷

Livock then refers to further work published by Viola *et al* in 1971 which was rejected by the industry, which subsequently initiated studies by Maltoni, an Italian researcher. Livock then continues:

According to one interpretation the US Manufacturing Chemists Association (MCA) entered into an agreement with its European sponsors (including four large manufacturers, ICI, Rhone-Progil, Solvay and Montedison) to share information, but not reveal it without their consent. This has been the heart and heat of the vinyl chloride controversy, and led to accusations that the industry deliberately covered up its own suspicions of carcinogenicity amongst workers.³⁸ In Late January 1973, the US National Institute of Occupational Safety and Health (NIOSH) requested information on possible hazards associated with occupational exposure, and astonishingly the response from the manufacturers' association made no mention of toxic effects on animals or people by recommending only a precautionary label. Whatever the final interpretation of the intentions of the chemical companies the outcome was inevitable. Maltoni's further report of November 1973 and the results of clinical observations which had been prompted earlier pointed to a public announcement having to be made. On the 22nd January 1974, the MCA revealed their data to NIOSH, the same day John Creech, the works doctor for B F Goodrich Inc, announced that three former employees had died...³⁹

36 Torkelson, Oxen & Rowe, Toxicity of Vinyl Chloride as Determined by Repeated Exposure to Laboratory Animals, (1961) 22 *American Industrial Hygiene Journal*, 354-361.

37 Livock, R, Science, Law and Safety Standards: A Case Study of Industrial Disease, (1979) 6 *British Journal of Law & Society*, 172-199, 192.

38 Edsall, Science Freedom and Responsibility (1975) 188 *Science*, 687-693, 690. ICI also say that they passed the information on to appropriate government agencies in July 1973. For a comment on this see McGinty, Science Paused and 17 Died, *New Scientist* 13 June 1974.

39 Livock 194.

All of which needs to be considered along with the considerable resistance of the industry in the United States to the regulation of vinyl chloride. As Tafler confirms, reporting that when OSHA proposed a new standard for polyvinyl chloride following the deaths of several workers, at the hearing the plastics industry presented studies predicting a loss of \$69-90 billion and about 2 million jobs. Actually, the real cost of compliance was about \$325 million in capital and a loss of 290 jobs through the closing of two obsolescent plants.⁴⁰

Lilienfeld provides a revealing account of how the asbestos industry "in concert with many of its insurers, systematically developed and then suppressed information on the carcinogenicity of asbestos."⁴¹ He quotes extensively from incriminating correspondence and reports that have been "discovered" in legal proceedings taken against the manufacturers. Castleman also covers the same ground very extensively.⁴²

In Britain the *New Scientist* reported that despite the high incidence of nasal cancer among workers using certain hardwoods, furniture manufacturers were strongly opposing any move by the Health and Safety Commission to institute new limits on dust.⁴³ All of this evidence casts an ominous question over the probity of industry even its giant multinational corporations.

4.11 CARCINOGENS

Without doubt of all the health problems of the workplace that of carcinogens and suspected carcinogens is the one that gives the greatest cause for concern. A major complication is that many agents that have been identified as causal factors of work-related cancer as well as those that are suspected of causing cancer, are also to be found in the general environment. Then there are other confounding aspects such as the synergistic effect of lifestyle as, for example, smoking and asbestos.

As Ames explains:

40 Tafler, S, Cost-benefit Analysis Proves a Tough Task, (1982) 2 (4) *High Technology*, 76-77, 76.

41 Lilienfeld, D E, The Silence: The Asbestos Industry and Early Occupational Cancer Research -- A Case Study, (1991) 81 *American Journal of Public Health*, 791-800, 791.

42 Castleman, B I, *Asbestos: Medical and Legal Aspects* 3rd Ed, (1990) Englewood Cliffs NJ: Prentice Hall. Refer particularly to Chapters 3 and 9 and Appendix 5.

43 *New Scientist*, (1986) Dust to Dust, V 110 (1514) 29.

Damage to the DNA appears to be the major cause of most cancers and genetic birth defects and may contribute to aging and heart disease as well ... The tens of thousands of man-made chemicals that have been introduced into the environment in the last few decades must also be tested for their ability to damage DNA. Existing animal tests and human epidemiology alone are inadequate for this task because of time, expense, and the difficulty of dealing with complex mixtures.⁴⁴

Ames then goes on to discuss the newly developed short-term tests in which he was evolved -- the Ames Test -- most of them assaying for mutagenicity and their use as key tools in identifying environmental mutagens and carcinogens.

In 1974, the annual general assembly of ILO adopted *Convention 139* and its accompanying *Recommendation 147*, concerning prevention and control of occupational hazards caused by carcinogenic substances and agents. Despite the importance of this topic and rather modest nature of its requirements given the seriousness the hazards in question, it appears to have raised scarce a ripple in the New Zealand scene. In the official report on the conference after acknowledging that New Zealand has insufficient legislative and other measures and that research is being undertaken to determine what further measures, if any, are needed, the report concludes:

Government proposes to defer consideration of the possibility of New Zealand's compliance with both the Convention and the Recommendation until such time as the proposed regulations have been promulgated and the question of vinyl chloride and other possible carcinogenic substances and agents has been resolved.⁴⁵

In contrast to Finland, action is still awaited. Refer pp 49 and 74. Also in Britain, the *Control of Substances Hazardous to Health Regulations* had "become an urgent necessity because the present system is inadequate to allow ratification of ... *Convention 139*." Refer to p .

Though concern for the causes of cancer is widespread in the community nevertheless the workplace presents several unique features. As Simonato and Saracci comment:

From a public health view point the chief relevance of occupational cancer lies in the fact that occupational determinants of cancer once identified can be removed or controlled more easily than causal factors related to personal habits under cultural influence, such as smoking and drinking.⁴⁶

44 Ames, B N, Identifying Environmental Chemicals Causing Mutations and Cancer, *Science*, (1979) 204 587-593, 587.

45 *Appendices to the Journal of the House of Representatives, A 7A, International Labour Organisation*, (1976) 3.

46 Simonoto, L & Saracci, R, Cancer, Occupational, *Encyclopaedia of Occupational Health and Safety*, Vol I, (1983) Geneva: ILO, 370.

This view is in line with that of Becker and Coye referred to earlier. The authors then go on to stress that biologically and clinically, occupational cancer is presently indistinguishable from cancer due to other causes.

One of the confounding factors facing those attempting to gauge the extent of occupational cancer is the part played by non-occupational factors. To quote Simonato and Saracci again:

One of the major problems in establishing a cause-effect relationship between an excess of cancer in a group of workers and their occupational exposure is to determine the role played by other non-occupational factors. This is mainly due to the frequently poor information of levels of exposure in industry and to the unreliability or entire absence of information, as in historical cohort studies on voluntary habits. When sufficient information has been available, it has been possible to document in certain situations a synergism between occupational and non-occupational carcinogenic factors. For example asbestos and smoking have been known to have a synergistic (multiplicative) effect in the production of lung cancer, although each of the agents is also independently capable of causing the disease.⁴⁷

They then emphasise the problem with epidemiology concentrating on "border-line" situations involving low exposures to known carcinogens, "weak" carcinogens or non-carcinogens that have come under suspicion. In such situations epidemiological methods may not be sensitive enough "to analyse the separate effect of different carcinogens" and to determine credible" causal association with occupational exposure."

4.12 THE PROBLEMS OF SUBSTITUTION

Where, as has been the case with asbestos, the use of a substance has been greatly reduced or abandoned altogether, it is equally necessary to ensure that the substitute does not also possess harmful properties. Asbestos is being replaced to a large extent by other material such as; fibreglass, rock-wool and slag-wool, often referred to as man-made mineral fibres (MMMF). As these substances have similar physical properties and structures to asbestos, it is logical to ensure, as far as is possible, that they too, do not have undesirable health effects. Considerable research has already been undertaken, which has proceeded along two avenues; epidemiological and experimentation with animals.

⁴⁷ Simonato & Saracci (1983) 374.

The research already undertaken into the possible toxicity of MMMF was reviewed at a meeting held in Copenhagen in 1986 under the aegis of the World Health Organisation. Doll analysed three major cohort studies that had been pursued in Canada, the United States and Europe and concluded:^{48,49,50}

On the basis of these observations made on over 40,000 production and maintenance workers, many of whom have been under observation for at least 30 yr, and on many laboratory experiments, I conclude that:

- (i) there has been a risk of lung cancer in people employed in the early days of both rock or slag and glass wool sectors of the MMMF industry amounting to some 25% above normal 30 yr after first employment, which is, however, numerically substantial because lung cancer is so common;
- (ii) the risk has been greater in the rock or slag wool sector than in the glass wool sector;
- (iii) no risk has been demonstrated in the glass filament sector;
- (iv) a variety of carcinogens have contributed to the hazard;
- (v) the uncertainty about fibre counts in the early days of the industry and the extent of the contribution of other carcinogens makes it impossible to provide a precise quantitative estimate of the likely effect of exposure to current fibre levels;
- (vi) no specific hazard other than a hazard of lung cancer has been established.

The conclusions are in some respects more definite than we had reason to think might be possible before the symposium began and it is to the credit of the industry, the unions and the individual scientists that it has been possible to mount collaborative studies on both sides of the Atlantic on a scale that has been large enough to provide useful answers to so many questions. Some conclusions, however, remain more open to question than would have been hoped: in particular, the extent of the carcinogenicity of the fibres to humans, owing to the absence of clear dose-response relationship ... Let me therefore add a seventh conclusion that, taking into account also the results of animal experiments, the experience of the

48 Shannon, H S, Jameson, E, Julian, J A, Muir, D F C & Walsh, C, Mortality Experience Of Ontario glass-fibre workers -- extended follow up, (1987) 31 *Annals of Occupational Hygiene*, 657-663.

49 Enterline, P E, Marsh, G M, Henderson, V & Callahan, C, Mortality Update of a Cohort of US Man-made Mineral Fibre Workers -- extended follow up, (1987) 31 *Annals of Occupational Hygiene* 625-656.

50 Simanato, L, Fletcher, A C, Cherie, J, Andersen, A, Bertazzi, P A, Charnay, N, Claude, J, Dodgson, J, Esteve, J, Frenzel-Beyme, R, Gardner, M J, Jensen, O M, Olsen, J H, Teppo, L, Winkelmann, R, Westerholm, P, Winter, P D, Zocchetti, C & Saracci, R, The International Agency for Research on Cancer Historical Cohort Study of MMMF Production Workers in Seven European Countries: Extension of the Follow-up (1987) 31 *Annals of Occupational Hygiene*, 603-623.

asbestos industry and the experience of the glass filament sector of the MMMF industry, MMMF are not more carcinogenic than asbestos fibres and exposure to current mean levels in the manufacturing industry of $0.2 F_r \text{ ml}^{-1}$ or less is unlikely to produce a measurable risk after another 20 yr have passed.⁵¹

[F_r = respirable fibres]

Several points seem to emerge from this symposium. Firstly it is clearly necessary to continue to monitor the use and any development in the manufacture of these substances. The fact that there has often been a very long period of latency with asbestos needs to be borne in mind though the lesser durability of at least some MMMF is an encouraging sign. One could well question whether evidence from the producers of MMMF gives an adequate indication of the nature of exposure encountered by the end users who have often to operate in far less favourable conditions than those of a well organised and ordered production line. Users may frequently work in confined spaces with inadequate ventilation. It also highlights the extent and complexity of the issues involved and the need for New Zealand to be very attentive to the tremendous amount of research that is being undertaken overseas. Possibly the most profitable way in which New Zealand could contribute would be to collect data by monitoring both workplaces and workers involved.

4.13 ACTION IN FINLAND

Finland's approach reflects the provisions of the 1974 ILO *Convention 139* and its accompanying *Recommendation 147* concerned with occupational cancer. Among the measures taken are:-

- * A register has been established of all employees occupationally exposed to substances classified as carcinogens.
- * A list of 134 carcinogenic substances has been established under three headings, namely:
 - 1 15 substances the use of which is prohibited except for permitted research purposes
 - 2 7 substances the use of which may be restricted by the National Board of Labour Protection.

⁵¹ Doll, Sir R, Symposium on MMMF, Copenhagen, October 1986: Overview and Conclusions, (1987) 31 *Annals of Occupational Hygiene*, 805-819, 817.

3 112 substances the use of which is permitted but requires adherence to a decision of the Council of State on the application of the Labour Protection Act to carcinogenic substances and processes.⁵²

Structure and content of the Register.

Employers are required to report annually the carcinogens used, the amount of each compound used and the names of employees engaged in the handling of carcinogens.

Employees are considered exposed, even during short periods, exceptionally high concentrations of carcinogens, as for example, during renovation work.⁵³

1.1% of workplaces were involved in the reporting and 6.1 employees per 1000 employees in the whole country.

4.14 A NATIONAL INSTITUTE OF OCCUPATIONAL AND ENVIRONMENTAL HEALTH

Such an institute is not a relatively new idea for the first one was established in Milan as long ago as 1904; the Clinica del Lavoro. In New Zealand Dr M H Watt had recommended such an institute in 1939 as did Davidson in 1944.^{54,55} More recently the Advisory Committee of Occupational Safety and Health recommended that an Occupational Safety and Health Institute be set up.⁵⁶ To a degree, modest progress was made with the establishment of a number of teams within the Health Department including laboratory and scientific assistance. However with the advent of the market-driven economy and the desire for massive reform in the public sector, the little that has been achieved has been almost all lost. Certainly nothing that is left could be even optimistically termed an Institute. As an example of what could be established here, we do not have to look further afield than Australia. In addition to the National Institute of Occupational Health and Safety, an arm of the National Occupational Health and Safety

52 Heikkilä, P, Savela, A, Vuorela, R & Rantanen, T. *Employees exposed to carcinogens in Finland in 1986*, (1986) Helsinki: Institute of Occupational Health.

53 Heikkilä *et al* 17.

54 MacLean, F S, *Challenge for Health: A History of Public Health in New Zealand*, (1964) Wellington: Govt Printer, 32.

55 Davidson, J M, Review of Industrial Safety in New Zealand and the Health of the Industrial Worker, with Proposals for the Development of the System, *Annual Report of the Department of Health H 31, Appendix 2*, (1945) Wellington: Govt Printer.

56 Advisory Council on Occupational Safety and Health, *Occupational Safety and Health Reform* (1988) Wellington: ACOSH 11.

Commission, there is the Victorian Institute of Occupational Safety and Health. The latter Institute is based at Ballarat University College which offers a similar programme to that at Massey, while the National Institute is associated with the University of Sydney.

Among the functions of an institute would be:

- Research;
- Health and safety information;
- Education and training; and
- Disease registers.

In New Zealand the need is no less than that of Australia. That nothing attempted here or even seriously advocated since Davidson's day is yet another clear indicator of the general lack of appreciation of the problems faced in occupational health. It may well be logical to combine public health with occupational health in line with Davidson's original suggestion; an Institute of Public Health. It is known that Australian authorities would welcome the opportunity to work in tandem with such a New Zealand institute.

4.15 ACTION NEEDED IN NEW ZEALAND

The approach taken by Finland provides an excellent example for New Zealand to follow. The recent publicity over the suggestion that an asbestos register be kept of those who have been exposed to asbestos and the establishments that use asbestos should be considered in a much wider context. However to implement such a scheme really effectively, it would be necessary to establish an Occupational Health and Safety Institute as recommended by Advisory Committee for Occupational Safety and Health.⁵⁷ The unique international co-operative research effort that has been undertaken with MMMF, signals that it would be possible for New Zealand to play a modest part on the international research scene provided its contribution was scientifically directed. Our considerable use of agricultural chemicals comes to mind. This, an Institute could profitably direct.

The problem of the unknown factors should not absolve us from pursuing more adequate protection from the known health hazards more relentlessly using all available means, of which training and education must be the most pressing.

⁵⁷ Occupational Safety & Health Reform, (1988) 13.

CHAPTER 5

INTERNATIONAL INFLUENCES

5.1 THE BEGINNING OF INTERNATIONAL CO-OPERATION

Johnston records that in 1818 "the Congress of Aix-la Chapelle was afforded an opportunity of incorporating in its decisions ... international provisions relating to labour and industry."¹ The suggestion put before the conference was that for the Governments of Europe there should be an international agreement for the length of a working day. The instigator was the well-known philanthropist and mill owner, Robert Owen but unfortunately he was ahead of his time. In the intervening years other attempts were made to initiate international accords on labour matters and in 1900 the International Association for Labour Legislation was established in Paris. In 1906 a conference in Berne adopted two Conventions; one prohibiting the use of white phosphorus in the manufacture of matches and the other on the prohibition of the night work of women.² The former Convention led to New Zealand passing the Phosphorus Matches Act 1910, the provisions of which are still extant in s 32 of the Factories and Commercial Premises Act 1981. The weakness of the Association was that it was not representative of employers' or workers' organisations or governments. Nevertheless as Johnston points out the experience gained in its pioneer work "was of real use in the construction of the framework of the ILO in 1919."³

1 Johnston, G A, *The International Labour Organisation: Its Work for Social and Economic Progress*, (1970) London: Europa Publications, 5.

2 Johnston (1970) 9.

3 Johnston (1970) 10.

The International Labour Organisation arose from the 1919 Peace Conference which initiated an enquiry:

... into the conditions of employment from the international aspect and to consider the international means necessary to secure common action on matters affecting conditions of employment, and to recommend the form of a permanent agency to continue such enquiry.⁴

The objective is to secure improved working conditions by international action and thereby to ensure that countries do not gain an advantage on others by the use of undesirable labour practices.

Unfortunately there is evidence that this objective is not always achieved. Castleman has followed a number of moves citing an American asbestos plant which had been set up in Mexico which country has no regulations to protect workers from asbestos.⁵ Similarly Nader asserts:

Health specialists point to 20 retarded children born to pregnant women working with toxics in one Matamoras plant. More hard data are needed, especially since many firms openly admit they moved their furniture, metal working, tanning and other plants to Mexico to escape legal controls on hazardous chemicals and waste in the United States.⁶

5.2 THE INTERNATIONAL LABOUR ORGANISATION AND OCCUPATIONAL HEALTH AND SAFETY

Since its formation, each year at its annual conference, the International Labour Organisation considers and usually adopts conventions and recommendations on various labour market issues. These have been frequently concerned with occupational health and safety. The ILO Constitution expressly included in its Preamble that it was to be concerned with:

... the protection of the worker against sickness, disease, and injury arising out of his employment.⁷

4 Quoted in Johnston (1970) 12.

5 Castleman, B I, The Export of Hazardous Factories to Developing Nations, (1979) 9 *International Journal of Health Services*, 569-606, 576.

6 Nader, R, Multinationals Make Megabucks from Cheap Labour on the Mexican Border, (1991) *The Examiner*, 8 August 1991, 18.

7 Osieke, E, *Constitutional Law and Practice in the ILO*, (1985) New York: Martinus Nijhoff, 145.

Normally conventions are accompanied by a recommendation which elaborates and expands the provisions in the convention. It is then up to the individual countries to decide whether or not to adopt and ratify the convention, and normally, that would not be done unless or until the appropriate legislation is in place. When the annual conference has adopted a convention, Article 19 of the Constitution requires members to:

... bring the Convention before the authority or authorities within whose competence the matter lies, for the enactment of legislation or other action.⁸

If the member is unable to act in accordance with the Convention it must report from time to time as requested, as to the current position, detailing measures that have been undertaken and any difficulties that have prevented or delayed ratification. No set time is fixed as may depend on the current importance of the subject.⁹

In the last two decades increasing attention has been paid to occupational health and safety on the world scene. To a certain extent this has been due to the need for the European Community to agree on common standards. In addition the International Labour Organisation has made substantial changes in the type and coverage of conventions and recommendations adopted from time to time at the annual general assemblies. Some of this activity reflects the greatly increased awareness of the importance of improving occupational health and safety countermeasures but increasingly too, have nations had to learn to cope with newer and potentially more hazardous substances, their manufacture, storage, transport and use, to say nothing of the problems of technology, pollution and waste disposal. The international codes which tend to be well drafted and comprehensive, provide an excellent guide for individual countries to adopt, with *Convention 155* and its accompanying *Recommendation 164* concerning occupational health and safety, being examples. These are discussed later in #5.4 and #5.5.

Though occupational health and safety have featured frequently have in ILO deliberations, until relatively recently these have dealt with specific sectors of industry (seafarers, fishermen, etc.) or individual hazards (radiation protection, benzene, carcinogens, etc) rather than the broad picture.

8 Johnston (1970) 294.

9 Osieke (1985) 160.

5.3 INTERNATIONAL PROGRAMME FOR THE IMPROVEMENT OF WORKING CONDITIONS

In 1976 following a resolution of the International Labour Conference, the governing body approved the International Programme for the Improvement of Working Conditions and Environment (PIACT). The objective of PIACT is to encourage member states along with their employer and worker organisations to set precise targets for improving the working conditions and environments and to help them to achieve those objects. The scope of PIACT is wide ranging and goes well beyond the traditional concepts of occupational health and safety. It recognises that health and safety do not fit into separate watertight compartments but are integral parts of a much larger whole including the total organisation and its management. Among the subjects involved are hours of work, arrangement of working hours, the organisation and content of work, the impact of technology, conditions of work and the relationship between the working and the living environment. One of the basic elements of the programme is to gain recognition for the proposition that the traditionally separate fields of occupational health and safety should be closely linked with the protection of workers generally, the working environment and the quality of working life.

5.4 CONVENTION 155

In 1981 the 67th Session finally adopted *Convention 155* and *Recommendation 164* concerning occupational health and safety and the working environment. With their adoption, ILO broke new ground. Hitherto all conventions on occupational health and safety have been concerned with either a specific industry, occupation or hazard. With countries like Great Britain, United States, Canada and Australia, recognising the need for a unified statute and a single enforcement agency, *Convention 155* is drafted accordingly. Key articles of the Convention are set out in Appendix II.

In the official report on Convention 155 and Recommendation 164 the New Zealand Government acknowledged that they "reflect a new national awareness of the importance of the problems of accidents and diseases." After mentioning the Walker Report¹⁰ the report concluded:

... a number of legislative changes would be necessary to give full effect to the provisions of the Convention. The extent of these changes has not been fully explored yet. Consequently there is a need for further investigation before the New Zealand Government can make a

¹⁰ Walker, I K, *Occupational Safety: An inquiry into the co-ordination of legislation on industrial safety, health and welfare* (1981) Wellington: State Services Commission.

decision regarding these instruments.¹¹

Scarcely an appropriate reaction to what is without doubt the most important Convention to be adopted so far on matters of occupational health and safety. Unfortunately there is no evidence from official documents that there is any follow-up to consider introducing amending legislation to enable ratification. Even when changes are made to the legislation, ratification does not necessarily ensue. See comment on *Convention 121* on p 87.

5.5 RECOMMENDATION 164

Conventions are ratified by governments when it is considered that their legislation contains the provisions set out in the convention. Recommendations are merely guides and consequently will represent the more advanced thinking on the topic. From the point of view of those desiring that the greatest possible progress be made in this field, *Recommendation 164* is of considerable interest for it enlarges on the provisions of the Convention both at the national level and at the level of the undertaking. Details of major importance are also set out in Appendix II.

5.6 CONVENTION 162 ASBESTOS

One of the most devastating substances to the health of workers is undoubtedly asbestos, yet the New Zealand Government when commenting in 1982 on *Convention 162* concerning Safety in the Use of Asbestos said this:

The requirement in Article 22(2) that employers have established written policies and procedures on measures for the education of workers on asbestos hazards and methods of prevention and control would be difficult to enforce and would probably encounter strong opposition from the vast majority of employers. It should be noted that in New Zealand, 95% of all enterprises employ fewer than 100 workers and 80% employ fewer than 10 workers.¹²

The report goes on to mention a number of other provisions with which New Zealand law and practice does not comply, particularly those relating to labelling, monitoring and medical examinations. There was, however, a suggestion that consideration be given to amending the regulations so as to enable the

¹¹ *International Labour Organisation: Report of New Zealand Government Delegates on the seventy-first Session of the International Labour Conference, Geneva 3 June to 24 June 1982. A 7, 51.*

¹² *International Labour Organisation: Report of the New Zealand Government Delegates on the seventy-second Session of the International Conference, Geneva, 4 June to 25 June 1986, Parliamentary Paper A 7, (1986) Wellington: Govt Printer 64.*

Convention to be ratified. The most recent amendment to the Asbestos Regulations (SR 1986/300) however made a number of changes though not embracing all the requirements of the Convention. Recent events make it obvious that a more positive approach was long overdue, though, for many, such measures would come too late.

Without a doubt the need for adequate controls of any contaminant is greatest with the smaller workplaces and the absence of a firm commitment to bring the New Zealand regulation of this highly toxic substance to the highest possible standard is difficult to follow. The original New Zealand Asbestos Regulations 1978 trailed the initial British regulations by 47 years.

In #7.19 the opposition of interest groups to mandatory controls has been noted even where a particular substance has been proved to be highly toxic. As New Zealand, like many other countries, relies to a considerable extent on products from other countries, the desirability of complying with ILO conventions is readily apparent.

5.7 OTHER RECENT CONVENTIONS CONCERNED WITH OCCUPATIONAL HEALTH AND SAFETY

Carrying on its consideration of the occupational health and safety area, in 1985 the 71st Session of the ILO Conference adopted *Convention 161* and *Recommendation 171* concerning Occupational Health Services. Details are likewise set out in Appendix II.

The wisdom of the initiatives taken in the 1950s to establish a number of occupational health centres referred to on p 23, undertaking much of what is now envisaged in *Convention 161* is demonstrated. Unfortunately with the closing of many of these centres a valuable service to the workforce in many of our smaller undertakings has been lost. However in a number of cities occupational health nurses have taken up the challenge to offer such a service.¹³ All recent conventions deserve much more consideration by New Zealand than they have so far received.

In the official comment on *Convention 161* the Government indicated that it "supports the concept of workers having occupational safety and health services available."¹⁴ Then after referring to the number of small enterprises in New Zealand the Report concluded:

¹³ Glass, W I, Health and safety needs of workers in medium-size workplaces (1988) 6 (6) *Safeguard*, 14-15.

¹⁴ *International Labour Organisation: Report of New Zealand Government Delegates on the seventy-first Session of the International Labour Conference, Geneva 7 June to 26 June 1985.* (1986) A7, 57.

Many of these do not receive an effective occupational health and safety services at present and pilot schemes are being developed to determine ways and means of providing such services to small industries.

The principles contained in the Convention and Recommendation will be taken into account in future consideration of policy in the area but in the meantime the Government proposes to take no formal action on the instruments.¹⁵

Such comments do not indicate a very positive attitude to occupational health and safety.

Equally important is the 1974 Convention 139 concerned with occupational cancer. Yet after referring to New Zealand's insufficient legislative and other measures which would prevent ratification of the Convention, the Government's response was that it:

... proposes to defer consideration of the possibility of New Zealand's compliance with both the Convention and Recommendation until such time as the proposed regulations have been promulgated and the question of the use of vinyl chloride and other possible carcinogenic substances and agents has been resolved.¹⁶

Despite the importance of this issue action is still awaited.

5.8 THE WORLD HEALTH ORGANISATION

The World Health Organisation (WHO) was established in 1948 and, as with the ILO, there had previously been a number of international bodies concerned with various aspects of health. There is close co-operation between WHO and ILO and there is a joint standing Committee on Occupational Health. One of the most important moves by WHO in recent years was the Declaration of Alma-Ata on primary health care which was adopted in 1979 with the objective of "health for all by the year 2000."¹⁷

One of the most important agencies established by WHO, is the International Agency for Research on Cancer (IARC) at Lyon, France. The agency undertakes important research which includes work on agents suspected of causing work-related cancers.

¹⁵ ILO Report (1986) 57.

¹⁶ *International Labour Organisation: Report of New Zealand Government Delegates on the seventy-first Session of the International Labour Conference, Geneva 7 June to 26 June 1975.* (1976) 6.

¹⁷ World Health Organisation, *The Work of WHO 1978-1979: Biennial Report of the Director-General* (1980) Geneva: WHO, xi.

5.9 INDICATIONS FROM THE EUROPEAN COMMUNITY

Pursuant to Article 118a of the Treaty of Rome, a number of directives adopted by the European Community (EC) relating to the health and safety at work have been issued, the primary one of which is *Council Directive 89/654/EEC Concerning the Minimum Safety and Health Requirements for the Workplace* to be implemented by 1 January 1993. As Walters points out:

Under the Articles of the Treaty, a directive is an instrument of law, which, once agreed, at Community level, must be introduced into the laws of each member state.¹⁸

The objective is to develop uniform standards throughout the Community. When visiting the Central Office for Industrial Injury Insurance Institutes in Bonn, Germany in 1974 I was informed that Germany was endeavouring to ensure that there would be no lowering of their standards. It would seem that they have been largely successful. As Weiss comments:

... the 1989 Framework Directive on the health and safety of employees was, to a large extent ... shaped by the Federal Republic of Germany.¹⁹

Again Walters indicates:

West German legislation is an example of a system that is focussed upon the role of the works council. Worker representation in health and safety here is an integral part of representation through the works council.²⁰

Strangely the Framework Directive does not implement all the measures found in ILO *Convention 155* and *Recommendation 164*.²¹ In discussing the EC Directive and the problems of occupational health and safety as they affect the United Kingdom, Neal stated:

The questions are endless; the task impossibly steep. Yet, it is only by the promotion of measures along the lines of the general principles set out in instruments such as the framework Directive or ILO Convention No 155, that discernible progress will be made

18 Walters, D R, *Worker Participation in Health and Safety: A European Comparison*, (1990) London: Institute of Employment Rights, 5.

19 Weiss, M, *The Industrial Relations of Occupational Health: The Impact of the framework directive on the Federal Republic of Germany*, (1990) 6 *International Journal of Comparative Labour Law and Industrial Relations*, 119-128, 123.

20 Walters (1990) 13.

21 Walters (1990) 19.

towards combating that worst of all tolls which the pattern of working life in industrial societies takes of its citizens within the European Communities -- that which they are required to pay in terms of their safety, their hygiene and their health.²²

Like *Convention 155*, the directives of the European Community are of considerable significance to New Zealand as indicators of a reasonable standard of statutory protection; deserving careful study.

5.10 OTHER ACTIVITIES OF ILO

The ILO has a network of regional offices across the world and is involved in many programmes of technical assistance. Until 1950 the activities in occupational health and safety were somewhat haphazard. That year the Governing Body set up a committee "to define particular aspects of the protection of the health of workers in dangerous or unhealthy occupations" to assist with directing future regulatory activity.²³ Interestingly Johnston continues

The Committee laid particular stress on two essential principles; the programme must be practical and must apply directly to the needs of governments, employers and workers; occupational health and safety are indivisible and should therefore be treated as aspects of the same problem.²⁴

In addition to conventions and regulations ILO also prepares codes which are intended to as guiding principles for countries where regulations do not exist. The ILO also prepares numerous publications, undertakes training programmes, research and sponsors fellowships, undertakes research, distributes information, all targeted where the need is the greatest.

5.11 NEW ZEALAND'S RESPONSE TO ILO CONVENTIONS

New Zealand's early association with ILO was scarcely enthusiastic. Wood records that after World War I New Zealand "played no effective part" as:

22 Neal, A C, *The European Framework Directive on the Health and Safety of Workers: Challenges for the United Kingdom?* (1990) 6 *The International Journal of Comparative Labour Law and Industrial Relations*, 80-117, 105.

23 Johnston (1970) 208.

24 Johnston (1970) 208.

Her whole impulse was towards collaboration with Britain within the Empire, and against independent action at Geneva or elsewhere. Moreover, in the official view 'New Zealand led the world in the matter of labour legislation, and ... had nothing to learn from other countries in that direction'.²⁵

It was not until the advent of the Labour Government in late 1935 that New Zealand took a more active role. In 1938 conventions were ratified for the first time, with 22 that did not require any change in the existing law being adopted.²⁶ But Wood then drew attention to the fact that subsequently there was not "any serious attempt to deal with those conventions which would require some modification of New Zealand law ..."²⁷

Appendix VI sets out details of conventions concerned with occupational health and safety indicating those that have been ratified by New Zealand and those that have not.

Most countries despite their regular attendance at the annual conferences of the International Labour Organisation (ILO) are never in a hurry to ratify the conventions which are adopted each year. Even when only a minor amendment to the legislation would bring it into line with the requirements of a convention, often no action is taken.

Since 1961, it has been the practice in New Zealand to comment on the applicability to the current legislation to the conventions and recommendations adopted at that year's conference.²⁸ Government may also give some indication of its probable intentions. Even when the matters at issue can be of some gravity, there is often little indication of any desire to act positively.

Prior to the report of the Woodhouse Commission New Zealand was in difficulty with the Committee of Experts which monitor "progress in the operation of the machinery of mutual supervision."²⁹ The difficulty arose over the inadequacy of our then Workers' Compensation law with respect to periodic payments as set out in Article 5 of the Convention 121.³⁰

25 Wood, F L W, *New Zealand in the World* (1940) Wellington: Dept Internal Affairs, 119.

26 Wood (1940) 120.

27 Wood (1940) 120.

28 Appendices to the Journals of the House of Representatives, A7 and A7A.

29 Johnston (1970) 101.

30 Dugdale, M D, *The ILO New Zealand's Record 1919-1979*, LL M Thesis (1979) Victoria University of Wellington, 47.

Despite the importance of *Convention 155* the Government's response was scarcely encouraging. The rather tardy appearance of the Occupational Safety and Health Bill 1990 some 8 years later may be regarded as the first response. All of which goes to emphasise New Zealand's seeming disinterest in the progressive moves being made elsewhere. An examination of the regular reports of the annual ILO conferences as published in Parliamentary Paper A7, there is no mention of any follow-up on the comments made in previous years on the earlier conventions. When one considered the very worthy objectives for which the ILO was established and the considerable expenditure that the New Zealand taxpayers foot each year, it is more than a little surprising that its efforts appear to be treated in such an off-hand manner. There is an unassailable case for Government to be held accountable in an open and systematic manner. There could well be an annual reporting to Parliament of the progress being made towards ratification of the conventions that have not yet been ratified.

For example the 1964 *Convention 121* concerning Employment Injury Benefits led to the establishment of the Woodhouse Royal Commission as the Government of the day recognised that the existing Workers' Compensation legislation was not up to the best of international standards as gauged by the Convention. Though the Commission's report led to the Accident Compensation Act 1972, the Convention has not been ratified.

Considering the importance of the objective of conventions and recommendations it is difficult to understand why many developed countries have a record of ratification similar to that of New Zealand. Admittedly those countries with a federal/state constitution with obligations being shared between the national government and the several states may have special difficulties. That problem does not exist in New Zealand where most conventions would present few difficulties in the legislative changes they would demand. However unless there is widespread adoption of the conventions it is difficult to see how the ultimate objectives can be achieved. If the Government was required to address the issues raised with the ILO conventions and recommendations in a public and systematic way there could well be a more open and better informed approach to these issues. More importantly it would ensure greater accountability on the part of Government with respect to occupational health and safety.

PART IV

THE LAW

CHAPTER 6

NATIONAL REGULATORY MEASURES

6.1 THE LAW IN NEW ZEALAND

Before examining the regulation of the health hazards in detail it is perhaps desirable to consider the law in general as practiced in New Zealand. The New Zealand law, as in many other countries of the British Commonwealth can be considered under two main headings-the statute law as enacted by Parliament with its accompanying regulations and the common law or "judge-made" law. Then there are the by-laws made by local authorities under powers delegated in such legislation as the Local Government Act 1974. There is also another branch of the law with which we are not concerned at this time; that of equity.

Atiyah in referring to the partnership between the common law and the statute law comments:

... the working of the Acts illustrates a legislative-judicial partnership which is not untypical in modern law. The statute was the starting point ... but within the framework of the statute, the common law methodology prevailed: that is to say case by case, *ex post facto* decision making with reasoned explanations and attempts at finding principles to govern future cases.¹

6.2 THE STATUTE LAW

The statutes as enacted by Parliament are the primary source of occupational health and safety law, of which the Factories and Commercial Premises Act 1981, Construction Act 1959, Boilers, Lifts and Cranes Act 1950, Machinery Act 1950, Bush Workers Act 1945, Coal Mines Act 1979, Mining Act 1971, Quarries and Tunnels Act 1982, Clean Air Act 1972, Explosives Act 1957 and Dangerous Goods

¹ Atiyah, P S, Common Law and Statute Law, (1985) 48 *Modern Law Review*, 1-28, 3.

Act 1974 are important examples. In addition there are a number of other Acts which also have some safety provisions though their main thrust may be in more general directions; these would include the Harbours Act 1950 and the Health Act 1956. The principal statutes are listed in Appendix I.

6.3 HAZARD-SPECIFIC LEGISLATION

Additionally there has been some legislation and regulations specific to certain health hazards. The Toxic Substances Act 1979 has its origin in the Sale of Poisons Act 1866 while the Pesticides Act 1979 is descended from the Fungicides and Insecticides Act 1927. The Animal Remedies Act 1967 relates to legislation back in the 19th century but in those days the concern was with the health of animals. The first legislation dealing with the problems of radiation was the Radioactive Substances Act 1949. The very important Asbestos Regulations only date from 1978. All of which hardly suggest that there has been an overhasty excursion into regulatory efforts to expand the prevention or control of health hazards of the working environment.

6.4 REGULATIONS

Most statutes provide that the Governor-General may by Order in Council make regulations and the relevant section in each Act sets out the matters which may be the subject of those regulations. A breach of a requirement of a regulation may attract a penalty equally as a breach of the Act itself. The principal regulations are listed in Appendix I under their relevant Acts.

6.5 CODES OF PRACTICE

Codes of practice are a more recent development being first introduced with the Construction Amendment Act 1970. Then followed the Factories and Commercial Premises Act 1981 and the Machinery Amendment Act 1986. Provision is made in these Acts for the Minister of Labour to approve codes of practice. Section 51 of the Factories and Commercial Premises Act provides that, where a person charged with an offence under the Act, has complied with the code, that shall be rebuttable evidence that the person has complied with the provision and, where a person has not complied with the code, the reverse applies. Under section 30(2)(d) of the Construction Act, regulations may be made requiring compliance with a code. Section 26B of the Machinery Act 1950 as inserted in 1986, now provides another variation, namely that a court may have regard to a code of practice. Refer also to #7.6.

6.6 THE COMMON LAW

The common law, which has been built up over time, comprises an important body of law and is derived from the decisions of numerous judges made over the years. It is of greatest importance in the fields of tort and contract. New Zealand like Australia and Britain is a common law country, unlike France, for example, which owes much to Roman Law and which is described as a "civil law" country. Common law relies on the principle of precedent. In many legal issues which come before the courts, there may be no guidance from any statute or regulation on a particular point or frequently it may be a case of interpretation of a provision of a statute or regulation. It is therefore essential that there be some consistency in the rationale of successive decisions of the courts. Thus previous cases are often referred to for guidance. In some cases the court will state the law as it sees it and, sometimes, these statements become recognised as fundamental principles of law. It is not a matter of looking for an earlier case wherein the facts were the same for, in reality, this seldom happens as each case tends to stand on its own particular facts. Rather is precedent a matter of principle, in other words, from those earlier cases, what matters of principle may be derived and applied to the one currently under consideration. As Lord Finlay stated in *Craig v Glasgow Corporation* [1919] SC 1 at 10:

... is seems to me that no inquiry is more idle than one which is devoted to seeing how nearly the facts of two cases come together. The use of cases is for the propositions of law they contain; and it is no use to compare the special facts of one case with the special facts of another for the purpose of endeavouring to ascertain what conclusion you ought to arrive at in the second case. Authorities so used would really very much encumber the administration of justice.

Over the years there has developed a highly organised system of law reporting which records judgements of the various courts. Not all decisions are recorded in this system but only those considered to have established important points of principle. Generally a lower court will follow a principle of law laid down by a superior court in an earlier case and equally will a superior court not hesitate to overturn a principle established by a lower court. On the other hand a superior court may approve a decision of a lower court and thus give that principle greater authority.

Despite the desirability of consistency, it has to be recognised that decisions are often made against the background of the climate of the day and in subsequent years a court may find the original principle quite unsustainable despite its venerable past. Back in 1837 a decision in one well-known case set a precedent which was not upset until many years later, that of *Priestley v Fowler* (1837) 3 M & W 1.

This case established a principle which became known as the "doctrine of common employment" or the "fellow servant rule". In other words in accepting employment, an employee was deemed to have accepted the risk of injury as a result of any fellow employee's action. While subsequent decisions put a dent in that principle, in New Zealand the defence of common employment was not finally put to rest until the passing of the Law Reform Act 1936. This illustrates how well established common law principles can be abrogated by an Act of Parliament. As is set out later the Accident Compensation legislation provides another example. A hundred years later, Lord Wright in referring to *Priestley's case* was moved to remark -- "[t]hese instances seem to show personal apprehension rather than any principle..."² The judge in this case was a wealthy land owner and the decision was clearly a reflection of the attitude of the times, the age of *laissez-faire*. As Fleming commented on the same case:

What ever its original justification when industry was vulnerable and the working man inured to hardship, it gradually fell into disrepute under the influence of changing social ideas and economic growth though its belated death-knell did not eventually toll until the present generation.³

These developments demonstrate how the law may evolve in response to changing social and economic conditions.

6.7 THE LAW OF TORTS

The aspect of the common law with which we are most concerned comprises the law of torts. However with the coming into force in April 1974 of the Accident Compensation Act 1972, the importance of torts in New Zealand became considerably reduced as the new legislation removed the right of a person to sue for damages in respect of personal injury or death and substituted new rights to Accident Compensation benefits, including rehabilitation. However the new legislation does not affect a person's right to recover damages in respect of loss to property, trespass, defamation or nuisance; thus the principles of the common law still apply even though they are not applicable to personal injury claims.

Section 27(1) of the Accident Compensation Act 1982 provides:

... where any person suffers personal injury by accident in New Zealand or dies as a result of personal injury so suffered ... no proceedings for damages arising directly or indirectly out of the injury or death shall be brought in any Court in New Zealand independently of this Act, whether by that person or any other person, and whether under any rule of law or any enactment.

² *Radcliffe v Ribble Motor Services Ltd* [1939] AC 215, 218.

³ Fleming, J G, *The Law of Torts*, (1971) Sydney: Law Book Co, 430.

Though negligence as a cause of action is now of much lesser importance than it once was, it is however, probably desirable briefly to consider the main headings under which such an action may lie as that remedy is still available for property damage and other losses apart from personal injury, caused through the negligence of another.

6.8 TORT DEFINED

Fleming after referring to the fact that no truly satisfactory definition of tort has been discovered, sets out the following in a footnote where he considers the best definition to be that offered by Winfield namely:

Tortious liability arises from a breach of a duty primarily fixed by the law: this duty is towards persons generally and its breach is redressable by an action for unliquidated damages.⁴

Fleming then went on:

In very general terms, a tort is a civil wrong other than a breach of contract, which the law will redress by an award of damages. But this definition is far from informative nor even strictly accurate in view of other remedies, like self-help and equitable relief by injunction, which are sometimes available to an injured party for a tort committed or threatened against him.⁵

It is accordingly the aim of the law of torts, once it is decided that some redress is justified, to remedy those losses which must inevitably result from the increasingly complex activities of those who live together in a community and which may affect others in that same community. This redress is made by providing compensation for the harm suffered insofar as it is possible to measure that harm in monetary terms. Even where no calculation is practicable, an arbitrary assessment of loss may be made.

6.9 DAMAGES

The redress referred to above comes under the heading of damages which are usually divided into "special" and "general damages", though there are some other types of damages such as "liquidated", "exemplary", "nominal" etc. The following definitions from a speech of Lord Goddard in *British Transport Commission v. Gourley* [1956] AC 185 at p 206 are in point:

4 Fleming (1971) 1.

5 Fleming (1971) 1.

First, there is what is referred to as special damage, which has to be specially pleaded and proved. This consists of out-of-pocket expenses and loss of earnings incurred down to the date of the trial, and is generally capable of substantially exact calculation. Secondly, there is general damage which the law implies and is not specially pleaded. This includes compensation for pain and suffering and the like, and, if the injuries suffered are such as to lead to continuing or permanent disability, compensation for loss of earning power in the future.

It may also be possible for a person who has suffered injury through high handed, outrageous or contumelious conduct of another person to claim exemplary damages which are punitive rather than compensatory. Such damages could, however, in no way take over the role of compensatory damages, which, of course, Accident Compensation is intended to replace. *Donselaar v. Donselaar* [1982] 1 NZLR 97.

6.10 THE LEGAL DUTY OF CARE

It has been well established that:

You must take reasonable care to avoid acts and omissions which you reasonably foresee would be likely to injure your neighbour. Who, then, in law is my neighbour? The answer seems to be – persons who are so closely and directly affected by my act that I ought reasonably to have them in contemplation as being so affected when I am directing my mind to the acts or omissions which are called in question. *Donoghue v Stevenson* [1932] AC at 580.

Over the years it has been incontrovertibly established that an employer should provide his employee with:

- * A competent staff;
- * Adequate material;
- * A proper system; and
- * Effective supervision.⁶

These four elements are frequently referred to together as embracing an employer's common law duty of care. As summarised by Lord Wright:

⁶ *Butler (or Black) v Fife Coal Co Ltd* [1912] AC 149, 174.

The whole course of authority consistently recognises a duty which rests on the employer, and which is personal to the employer, to take reasonable care for the safety of his workmen, whether the employer be an individual, a firm or a company, and whether or not the employer takes any share in the conduct of the operations.⁷

Failure to comply with any of these duties could, if someone suffers harm, result in the employer being held negligent. Nevertheless the employer is not expected to make his workplace safe in all circumstances.⁸

6.11 FORESEEABILITY

The question of the extent to which a tortfeasor (the alleged negligent party) should be expected to foresee the consequence of his actions or a failure to act, has been the subject of much litigation.

The standard of foresight of the reasonable man is, in one sense an impersonal test. It eliminates the personal equation and is independent of the idiosyncrasies of the particular person whose conduct is in question. Some persons are by nature unduly timorous and imagine every path beset with lions. Others, of more robust temperament, fail to foresee or nonchalantly disregard even the most obvious dangers. The reasonable man is presumed to be free both from over-apprehension and from over-confidence but there is a sense in which the standard of care of the reasonable man involves in its application a subjective element.⁹

And again, considering the magnitude of the risk and the degree of harm and this is discussed further in #7.12.

That the decisions of the courts can reflect a very real appreciation of the practical aspects of activity in a workplace, is clearly evident from this passage in a speech of Lord Oaksey:

It is ... well known to employers ... that their workpeople are very frequently, if not habitually, careless about the risks which their work may involve. It is ... for that very reason that the common law demands that employers should take reasonable care to lay down a reasonably safe system of work. Employers are not exempted from this duty by the fact that their men are experienced and might, if they were in the position of an employer, be able to lay down a reasonably safe system of work themselves. Workmen are not in the position of an employer.

⁷ *Wilson and Clyde Coal Co Ltd v English* [1937] AC 57, 84.

⁸ *Morris v West Hartlepool Steam Navigation Co Ltd* [1956] AC 552

⁹ *Glasgow Corporation v Muir* [1943] AC 448, 457.

Their duties are not performed in the calm atmosphere of a board room with the advice of experts. They have to make their decisions on narrow window sills and in other places of danger and in circumstances where the dangers are obscured by repetition.¹⁰

6.12 TORT LAW AND DETERRENCE

Refer to #11.4.

6.13 BREACH OF A STATUTORY DUTY

The other avenue open to an injured party under the common law, is to prove that there has been a failure to comply with a duty imposed either by statute or a regulation. Though the statutes and regulations contain penalties for failure to comply with their provisions, it has been well established that those provisions do not provide for compensation for the individual. However, failure to observe them may be evidence of failure to exercise the duty of care. *Groves v Wimbourne (Lord)* [1898] 2 QB 402. As Rigby LJ stated at p 413:

There has been a failure in the performance of an absolute statutory duty, and there is no need for the plaintiff to allege or prove negligence on the part of anyone in order to make out his cause of action.

The proliferation of regulations made under statutes, combined with low compensation benefits in many countries has led to substantial growth in the use of the common law remedy. As a consequence, such causes of action citing a breach of a statutory duty are often referred to as "statutory negligence" or "negligence without fault". Furthermore they have led to employer organisations resisting the implementation of further regulations.

Such duties are absolute and the responsibility cannot be delegated, even if the actual act of compliance must, of necessity, be delegated, as for example, an airline must delegate to the pilot of an aircraft the task of observing the appropriate air navigation and other regulations; the ultimate responsibility, however, still rests with the airline. Failure to comply with a statutory duty, such as to fence moving parts of machinery securely, cannot be excused on the grounds of impracticability if the legislation is unequivocal about the duty imposed. In the well known case of *John Summers and Sons Ltd v Frost* [1955] AC 740, the worker was injured when using a grindstone that was not completely guarded. The employer endeavoured to escape liability on the grounds that it was impracticable to guard

¹⁰ *General Cleaning Contractors Ltd v Christmas* [1953] AC 180, 189.

a grindstone through its full circumference and yet for it to be functional. That defence failed as the particular provision in the legislation created an absolute duty to fence. It would have been another matter if the duty had been qualified by words such as "as far as is reasonably practicable" or something similar. See #7.12. The position in Britain was subsequently changed by the advent of the Abrasive Wheels Regulations 1970. In New Zealand regulation 73 of the Woodworking Machinery Regulations 1973 introduced a similar change.

6.14 NEW ZEALAND TODAY

At the time of writing the most important legislation is that to be found in Appendix I but a new Occupational Health and Safety Bill is imminent. The influence of tort law is relatively insignificant though the principles still apply. The ultimate sanction against a breach of a regulatory requirement lies substantially with the appropriate Government agency prosecuting offenders through the courts. Next the character and effectiveness of regulation is examined.

CHAPTER 7

THE CHARACTER OF REGULATION

7.1 NEW ZEALAND'S APPROACH TO THE REGULATION OF OCCUPATIONAL HEALTH HAZARDS

Having examined the historical background to health and safety regulation in New Zealand, identified the adverse health effects of the working environment, the source of the problems, the indications for action from international standards and the law in New Zealand today, it is now logical to examine current regulatory practice in New Zealand. That may then be considered against the developments that have taken place in other countries in recent years particularly those with which we have the closest ties. Then there are the respected international standards such as those of the ILO and now the European Community. The latter are particularly important as they are intended for use across national borders while the legislation of individual countries is enacted against that country's cultural, economic and social background.

New Zealand's approach to regulation is fragmented with numerous Acts and regulations and several enforcement agencies but the advent of the Occupational Safety and Health Bill in 1990 promised a change of direction. The Third Schedule of the Bill lists 6 Acts that the Bill would have repealed and, in addition, 11 other Acts, sections of which contain provisions relating to occupational health and safety and which the Bill would also have repealed. Likewise the Fourth Schedule details 32 regulations and orders that the Bill would have revoked. Thus apart from regulations, some 17 statutes were concerned with occupational health and safety. The intent of the Bill was that the provisions in the repealed Acts, insofar as their provisions were not covered by the Bill, would be set out in regulations or codes of practice.

Some important legislation and regulations are not included in the Bill however, such as the Radiation Protection Act, Dangerous Goods Act, Explosives Act, Gas Act, Pesticides Act, Toxic Substances Act, etc, and their attendant regulations, presumably because of their public safety aspect as

opposed to those Acts that only affect workplaces. However clause 8 (1) (c) and some later provisions of the Bill place a duty on employers "to take all reasonably practicable steps to ensure that nothing in a workplace puts the public at risk of injury or illness." All of which throws into question the desirability of attempting to separate occupational health and safety from public health and safety. This view led to the following suggestion:

A NATIONAL SAFETY AND OCCUPATIONAL HEALTH COMMISSION

Some who have seen the developments that have been taking place overseas are of the view that the time has come for New Zealand to consider new legislation comprising a single comprehensive statute and for this a unified inspectorate. ... However the time is now ripe for a much more innovative approach -- a National Safety and Occupational Health Commission to be given every consideration.¹

Certainly a commission responsible for the total environmental health problems rather than just those that are occupational, would be a more logical move. As the Law Commission commented:

The fragmentation which others have identified in the employment context is even more apparent in the wider safety area. Thus there is no central body of information about safety promotion, no central set of officials to advise Ministers in a coordinated programme of research, prevention and evaluation, and accordingly no overall governmental view of the allocation of public resources for those very important purpose.²

The current Act most frequently referred to is the Factories and Commercial Premises Act 1981 but as mentioned earlier on p 16, it is hardly earth-shattering legislation. The provision authorising the promulgation of regulations for the establishment of works safety and health committees and the appointment of safety representatives in certain circumstances has not yet been acted on. This no doubt reflects the opposition to compulsion by employer organisations. Though the empowering provisions with respect to regulations must be wide ranging, inevitably one must question the *bona fides* of enacting such provisions then failing to implement them. It could be maintained that the provisions in question may have been drafted to ensure an easier passage of the statute through Parliament but with the intention that they then lie dormant. As indicated on #13.10, the sections of the Act concerned with many of the health hazards of the working environment are minimal and have not been supplemented by comprehensive regulations. While the Regulations Review Committee is charged with reviewing regulations that have been made, it does not consider those that have not been made even though their provision is anticipated in the statute.

1 Campbell, I B, *Legislating for Workplace Hazards in New Zealand: Overseas Experience and Our Present and Future Needs*, (1987) Palmerston North: Massey University. 102.

2 Law Commission, *Prevention and Recovery: Report on the Accident Compensation Scheme, Report No 4*, (1988) Wellington: Law Commission, 32.

7.2 RECENT CHANGES ELSEWHERE

The evidence from Britain, Canada and more recently Australia unquestionably supports the desirability of a single unified statute setting out broad principles. However, on its own, such a move merely eliminates any confusion and other problems which can stem from a multiplicity of regulatory measures and agencies, being in essence merely a matter of legislative and administrative housekeeping. Even if it is accepted that the difficulties arising from a plethora of statutes and enforcement agencies has been overstated, there is another and more compelling reason for a single statute. So long as various sections of industry are regulated by separate Acts and regulations, there will be some workplaces left uncovered and for which no regulations or codes will be prepared. Furthermore similar problems can be dealt with in differing ways without a central focus. Therefore the general duties of both employers and employees specified in the principal statute need to be carefully and comprehensively drafted as there is a limit to the industry-specific regulations and codes that will be practicable to promulgate.

7.3 POLITICIANS: CUCKOOS IN THE REGULATORY NEST?

The shape of legislation is entirely a political issue. Thus the enforcement of regulations which stem from that legislation, though initially a matter for the appropriate authority, can also become a subject to political forces. The outcome may well depend on the pressure that can be brought to bear by the contending interests. There are other aspects too, such as that of the preventive method to be adopted -- expensive but passive engineering controls or much cheaper personal protection but which depends on the active participation of the individual. Again cases are also on record where workers have opposed more stringent measures fearful of job losses. The weighing of cost as against any benefit has been a hotly debated issue in many countries and is commented on later in Chapter 12.

In the long run, the degree to which contending views of management and labour are given consideration, is largely a matter of practical politics, deciding the ultimate regulatory action but often inaction. The resultant compromise may please neither party and certainly not satisfy any one party completely. This, despite the considerable guidance that can be gained from experience elsewhere and international standards such as ILO conventions and recommendations.

While some legislation has stemmed from a specific report, other legislative changes have had their origin in party political policy, often in the wake of an election followed by a change in government. In general, occupational health and safety have not stood very high in the priorities of most governments, though more recently, in some countries, such as Canada and Australia, this has been changing. This

was the case in Britain until the advent of the Thatcher Government.³ On the other hand, in the last few years there has grown up in a number of countries, a call for less regulation and for the benefits of any proposed regulation to be weighed against the costs. Furthermore while, at least initially, it is the employers who have to meet any cost, it is the workers who will reap most of the obvious benefits. Such a view, however, overlooks one important factor, namely, that the same incidents, which may give rise to injury, even occasionally death, may also cause property damage or other undesirable and unwanted outcomes which are often very costly to the employer concerned.

It is very questionable whether legislation passed in response to a public demand will necessarily result in the most needed or most effective law. The difficulty facing the legislators was well put by Calabresi and Bobbitt when they stated:

Consider the different attitude we all share toward the failure of Congress to pass truly effective safety legislation, as against the attitude we would have were it unwilling to appropriate funds for the rescue of a trapped hostage. Lives may be discarded in both examples, but the choice is less exposed in the first case and therefore less destructive of some of the basic values involved.⁴

The political input to the regulation of occupational health and safety can be considerable but not necessarily for the best.

7.4 THE 1990 OSH BILL: FORWARD THINKING BUT WITH SOME PUNCHES PULLED

The 1990 Occupational Safety and Health Bill gave promise of the most progressive measure concerning occupational health and safety that has ever been considered in New Zealand. Although this Bill had many highly desirable features, features absolutely essential to progress, there were some disappointing aspects. Probably the greatest need is for there to be a more co-operative approach within the workplace and between the workplace and the enforcement agency. To some it may seem incredible that many of the recommendations to be found in a document like *Occupational Safety and Health Reform* which largely represent views of not only employer and worker interests but also those of Government agencies were not given greater acknowledgement especially in view of the many advantages of this approach.⁵

³ When visiting the British Health & Safety Executive in 1982, I was advised by a senior official that no new inspectors had been appointed for three years.

⁴ Calabresi, G & Bobbitt, P, *Tragic Choices*, (1977) New York: W W Norton & Co, 40.

⁵ *Occupational Safety and Health Reform* (1988) Wellington: ACOSH.

While opposition to the reform package presented by ACOSH may stem from the well publicised aversion to Quangos, most will see it as a lack of confidence on the part of the politicians probably fueled by apprehension on the part of some of their public service advisers. After all the lack of any forward-thinking moves over the past few decades are clear indicators of complacency and a reluctance to change. In reality administrative changes suggested by ACOSH pale into insignificance when viewed against other changes in the public sector in recent years.

There is then the nature of the administering authority. Is it to be a bipartisan Commission with authority remaining with a department of State responsible to a Minister for the administration of the Act as provided in the Occupational Safety and Health Bill or a Commission representative of the interests involved, as is the case with the Health and Safety Commission and Executive in Great Britain, and as recommended for New Zealand in the ACOSH discussion paper. The advantages of the ACOSH approach are summarised below.

A tripartite commission would bring the contending interests together and so enable a better understanding to be reached of each others' views. This would help lay a firm foundation for the development of a more participative approach both at the national level and at that of the individual undertaking. The reluctance of departments to yield functions to another department is well known and understandable. However had the recommendation to establish a stand-alone Authority undertaking functions transferred from all departments, then the opportunity would have been presented to that new body to develop its own culture. It is suggested that the end result would have been a much more effective and cohesive body.

Unfortunately the recommendation for an Institute to be the technical, scientific and research arm of the Commission has faded into obscurity. Refer to #4.14. The efforts of the Health Department to establish adequate technical, scientific and research resources over the last three decades have only met with limited success despite the very determined efforts on the part of a small number of very dedicated officials. Regrettably the events of the recent past have seen a dismembering of most of what remained. Much of the technical support needed by the inspectorate now comes from the area health boards which do not all have the same ability to meet the needs apart from their financial problems. The recommendation of the ACOSH proposals for an Institute thus remains but a pipe dream though the Labour Department has recently appointed medical and technical personnel at Head Office.

7.5 SUBSEQUENT DEVELOPMENTS

To those who have been disappointed with the approach taken in the 1990 Bill, it would seem that more disenchantment may lie ahead. With the change in government, not only is there no advisory council (ACOSH) but the provisional commission that had been established by the previous government has also been disbanded. Seemingly the new administration sees little value in the participatory approach at both the national and local level being either unaware of or unmoved by the favourable results that have been achieved elsewhere. However in a 10 point discussion paper issued by the Minister of Labour indicating the likely shape of the new legislation there is mention of the need for "[c]onsulting with employees on the assessment, control and monitoring of risks."⁶ Then there is the possible adverse effect of the Employment Contracts Act 1991 but which has yet to be experienced. In an explanatory letter accompanying the discussion paper the Minister stated:

In my view, the detailed prescriptions in the previous Government's Bill are inappropriate in the labour market environment created by the Employment Contract Act. This view was strongly supported by all employers consulted.⁷

The recent British experience is in point here. Refer to #9.5.

7.6 REGULATIONS AND CODES OF PRACTICE

The drafting of suitable regulations and keeping them in line with current developments in both practice and technology, is no light task. Regulations which are being constantly amended are difficult to use unless they are regularly reprinted with all amendments incorporated; as, for example, have been the Construction Regulations. Wherever possible regulation needs to be so designed and enforced that attention is first focussed on the management of the organisation; its systems, quality controls, etc, thus reinforcing the modern concept of the paramount importance of the role of management.

The Robens Report made much of the difficulty of enforcing a mass of regulation and it stressed that if regulation is added to regulation in an endeavour to ensure that every possibility is covered, and detailed procedure is laid down for every process, the mountain of regulation becomes counter-productive.⁸ It was considered that any attempt to cover contingency after contingency would result in a degree of elaboration, detail and complexity that defies rational interpretation. The point was also made

⁶ Birch, Hon W F, *Management of Health and Safety in Employment*, (1991) Wellington: Minister of Labour, 4.

⁷ Letter from Minister of Labour to the Vice President, NZ Council of Trade Unions dated 5 August 1991.

⁸ Committee on Safety and Health at Work, *Safety and Health at Work: Report of the Committee*, 1972) Cmnd 5072, London: HMSO, 7, (The Robens Report). 7.

that it is difficult to keep up with the accelerating progress of modern technology which could necessitate frequent changes to any detailed style of regulation. With good reason did a committee of inquiry into technological change in Australia devote some attention to the effect of that change on occupational health and safety; particularly the growing health hazards.⁹

The Robens Report advocated that "statutory regulations should be simpler in style" and before any regulation is made the alternative of a non-statutory code or standard should be considered.¹⁰ The codes have less formal validity in that failure to comply with a code or standard is not a breach of a statutory requirement as such, but in most cases being merely prima facie evidence of a failure to exercise the required standard of care. Codes of practice may have a formal standing when issued under the provisions of a statute such as the Construction, Machinery and Factories and Commercial Premises Acts. However codes may also be published by organisations such as the Standards Association of New Zealand, while individual industries or organisations may also develop their own codes and standards.

There may be objections to the less formal way by which codes are approved, as compared with regulations. Admittedly there are some criticisms of the greater use of non-regulatory codes and standards, though with all codes the objective is improved practice. Howells in commenting on the Robens Report stated:

Criminal courts might experience some difficulty if asked to receive in evidence alternate, or even conflicting codes of practice in determining whether or not some broad obligation had been met ...¹¹

However that concern does not appear to have been justified, at least in New Zealand. Though there is little evidence in the Law Reports of a code often being used as the basis of a prosecution, the Department of Labour was successful in an action against an employer who did not comply with the Code of Practice for Excavation.¹²

Since codes were first introduced in New Zealand under the provisions of s 18A of the Construction Act 1959 by s 3 of the Amendment Act of 1970, they have been well received by that industry; both management and labour. Again if, as recommended in the ACOSH discussion paper, a tripartite Commission is involved in reporting and making recommendations to the Minister on regulations and codes of practice, then there is a greater chance that what finally emerges will be the most appropriate

⁹ *Technological Change in Australia: Report of the Committee of Inquiry*, (1980) Canberra: AGPS, Vol 4, 441.

¹⁰ Robens (1972) 45.

¹¹ Howells, R W L, *The Robens Report*, (1972) 1 *Industrial Law J*, 185-196, 188.

¹² *Department of Labour v Russell Pemberton Ltd* (1977) 14 MCD 344.

and practical provision for the purpose intended.¹³ In saying this, it is not being suggested that contentious issues will always be resolved, for clearly there will always be matters on which management and labour will totally disagree. Nevertheless experience with tripartite organisations has proved that a better understanding is reached when each other's problems are understood. The use of codes in prosecutions is referred to in #6.5.

Codes such as those issued under the Construction Act contain much technical detail that would be difficult to cover in a regulation. As Robens comments:

They [statutory regulations] express unequivocal legal obligations and can be strictly enforced. On the other hand, they often take a long time to make, technical details can quickly become out of date, and in practice once made they are seldom easy to revoke. Non-statutory codes of practice and standards are more flexible. They are easier to introduce and revise. They are more progressive in that they need not be restricted to minimum standards, and they are less likely to inhibit new developments.¹⁴

Any advocacy of the widespread use of codes of practice replacing regulations raises the question as to the circumstances in which codes will be the preferred option and vice versa. The preference for non-statutory codes or standards instead of regulations is well traversed in the Robens Report which at the same time recognises that the issue is a controversial one.¹⁵ Their preference is based on "the interests of intelligibility and flexibility, and as a means of providing practical guidance towards progressively higher standards."¹⁶ Reference may be made to codes in regulations in some circumstances.

The observations made by Baldwin on the British scene need to be given some consideration. After commenting that codes of practice were intended to be practical documents, he continues: "they have tended, over the years to operate increasingly like regulations and are not practical enough."¹⁷ Baldwin indicates that the simple explanatory documents issued by the Health and Safety Executive are given the greatest attention. The home gardener is similarly familiar with the problem of using the herbicides, etc with their detailed instructions in quite small print. In industry, it is suggested, the problem of complex instructions and information can only be overcome with adequate training schemes for all involved; the internal responsibility system.

13 OSH Reform (1988) 12.

14 Robens (1972) 45.

15 Robens (1972) 45.

16 Robens (1972) 46.

17 Baldwin, R, Why Rules Don't Work, (1990) 53 *Modern Law Review*, 321-337, 327.

In New Zealand it is not easy to make any judgement of the effectiveness of codes as against the provision of regulations covering the same subject-matter. As prosecutions are generally regarded as an avenue of last resort there is little opportunity to judge their ultimate effectiveness. As already mentioned there appears to be only one reported case of a code being cited in a prosecution.¹⁸ If codes are widely accepted by industry as a guide to be followed, as appears to be the case then, it is suggested, they are achieving their purpose. Unfortunately there is only anecdotal evidence to support that conclusion.

7.7 THE AUSTRALIAN EXPERIENCE

Klineberg, one of the employers' nominees on the Victorian Occupational Health and Safety Commission, reports that:

The Commission has learnt to work as one body, rather than two groups each pushing its own barrow. The process has been important not only in formulating practicable regulations and codes, but also in having them understood by the people who put them into practice.¹⁹

An independent Commissioner nominated for her own expertise in health and safety and who chaired a committee which drew up a Code of Practice on Manual Handling, also comments:

In chairing the working parties I was impressed with the willingness of all participants to sustain a positive attitude and equally their willingness to seek creative approaches to resolving the problem. It was a prickly issue which the Commission was brave to tackle, but we were able to negotiate and reach agreement.²⁰

When the writer was visiting Perth in 1987 one of the members of the West Australian Occupational Health and Safety Commission expressed a similar view.²¹

7.8 THE BRITISH EXPERIENCE

Nevertheless though the ability of the parties involved to reach a consensus is to be welcomed, it may also signal a lack of actual progress with real issues. The Employment Committee of the House of Commons carried out an enquiry into the working of the Health and Safety Commission and Executive commemorating ten years of effort since the Robens Report was published. After welcoming the consensus that has developed between employers and unions since the passing of the new legislation the Committee had this to say:

¹⁸ *Department of Labour v Russell Pemberton Ltd* (1977) 14 MCD 344.

¹⁹ Klineberg, K, *Commissioner Profiles*, (1989) 4 (2) *Update* 2.

²⁰ *Update*, *Commissioner Profiles*: K Hely, (1989) 2 (2), 2.

²¹ Chesson, B, *Personal communication* (1987)

While recognising that the Commission has achieved consensus on new legislation, the Committee was concerned that this might have been at the expense of reasonable expedition, or progress in controversial areas.²²

Having made those comments, however, the Committee did accept the Commission's explanations for delays that had occurred.

Wilson is not convinced that in Britain, the Health and Safety Commission is any more successful than OSHA in the United States in regulating the health hazards of the working environment, for there too, regulation of health hazards has also been fairly minimal, with:

... the tiny number of substantive health regulations promulgated by the HSC [Health and Safety Commission], are dwarfed by the amount of new hazards introduced into the workplace since the agencies were created.²³

The quote from the *New Scientist* on p 70 confirms this view. While British employer organisations do not challenge any proposed regulations in the courts, their influence still prevails. In the Health and Safety Commission, it has been customary only to act when there is a consensus. This because: "[t]he unions have voluntarily accorded the employers a veto over health and safety regulations..."²⁴

Wilson continues:

It is true that a minority of union officials, the extremely weak public interest groups, and a few journalists are highly critical of these arrangements. However, the malcontents have little influence, except when they can publicize delays in the system. At the local level, British inspectors, unlike Americans, are seen by those they inspect as friendly advisers, more than policeman.²⁵

7.9 RECENT CHANGES IN BRITAIN

The Health and Safety Executive has developed a new approach. The change was also influenced by Government economies which resulted in a reduction of the size of the inspectorate. Whereas the old style inspection involved a search for breaches of regulations, the new approach is to look at the management style and initially to determine the effectiveness of the management, especially the implementation of the health and safety policy. This on the basis that the higher the standard of management the more likely the compliance would be adequate. Certainly if the standard of management was poor then it is very probable that compliance would be also inadequate.

²² *Sixth Report from the Employment Committee: Session 1981-82*, (1982) London: HMSO, v.

²³ Wilson, G K, *The Politics of Safety and Health: Occupational Safety and Health in the United States and Britain*, (1985) Oxford: Clarendon Press, 163.

²⁴ Wilson (1985) 152.

²⁵ Wilson (1985) 152.

There is another important aspect to this approach. Only good management will give the necessary attention to those other matters that, though not subject to any regulation, nevertheless can be the cause of injury, disease and occasionally death.

7.10 THE PROBLEMS OSHA FACES

As much of the research that has been undertaken relates to the American scene, it is essential to bear in mind aspects that are near unique to the United States. There will be few countries where occupational health and safety regulation has roused more public debate than in the United States. Though many of the problems OSHA faces are peculiar to that country such as political issues, the extent of pressure for deregulation, lobbying by powerful interest groups and the litigious nature of American society, there is nevertheless, much of a practical nature to interest us. That interest is not limited to enforcement itself but even more relevant to health issues is the decision whether to regulate or not. In this latter aspect the uncertainties in medical, technological and, at times, economic issues are all important. As Latin states in referring to this uncertainty:

Judicial responses to economic and technological uncertainty have ranged from Judge Wright's observation that "OSHA cannot let workers suffer while it awaits the Godot of scientific certainty"²⁶ to the Fifth Circuit's procedural conclusion that OSHA invariably "has the burden of proving feasibility."^{27,28}

The lead smelting companies involved in the first case had been relying on personal protection and biological monitoring rather than modern technology. Presumably Judge Wright was mindful that Samuel Beckett's Godot never appeared, not a good omen for the better realisation of the uncertainties.²⁹

Among the early critics of OSHA were Nichols and Zeckhauser who maintained that:

OSHA focussed on the wrong policies, safety on the job instead of occupational health, and employed the wrong tool, direct regulation rather than an incentive approach.³⁰

While there is fairly general agreement on the first conclusion there would be considerable debate on the second and it is important to consider the incentives that were being recommended.

²⁶ *United States Steeworkers v Marshall* 647 F 2d 1189, 1266, DC Cir 1980).

²⁷ *Texas Indep Ginners Assn v Marshall*, 630 F2d 398, 414 (5th Cir 1980).

²⁸ Latin, H A, *The Feasibility of Occupational Health Standards: An Essay on the Legal Decisionmaking under Uncertainty*, (1983) 78 *Northwestern University Law Review*, 583-631, 630.

²⁹ Beckett, S, *Waiting for Godot*, A Play, (1956) London: Faber & Faber.

³⁰ Nichols, A L & Zeckhauser, R, *Government goes to the Workplace: An Assessment of OSHA*, (1977) *The Public Interest*, 39-69, 39.

The incentives they recommend include an injury tax, greater use of experience rating which are discussed later in Chapter 11 and trade-offs between wage premiums for hazardous conditions and safety measures. However they do concede that these measures are "less relevant to occupational health" and discuss the possibility of a "[t]ax based on worker exposures" though with less conviction and concede that the "need for government intervention in occupational health is much stronger."³¹ They conclude:

Although the potential gains from health regulation may well be large, the costs will be staggeringly high if OSHA continues along its present course.³²

Another important comment is that:

Information and training efforts are tiny relative to the resources directed to enforcement. Congress imposed cuts in those portions of OSHA's budget that relate to the provision of information and analysis.³³

This view is relevant to New Zealand where training has been reduced in recent years. Refer to the comment by Perry on p 124.

More recently Shapiro and McGarity comment:

OSHA ... has been a disappointment. During its seventeen-year history, the Agency has completed only twenty-four substance-specific health regulations. Perhaps the best indication that this output falls below what its proponents expected is that OSHA has either no worker protection standards or inadequate standards for more than one-half of the 110 chemicals used in workplaces that the National Cancer Institute (NCI) regards as confirmed or suspected carcinogens.³⁴

Moved by the slow progress in implementing regulations covering health standards during the 1970s, (about 1.5 standards a year) OSHA proposed the use of generic standards whereby several chemicals could be regulated through a single regulation. In this, however, the accent was not on the regulation itself but rather on the very litigious process that ensued before a regulation could be finally promulgated. Briefly Lee explained the proposed carcinogen policy which:

31 Nichols & Zeckhauser (1977) 65.

32 Nichols & Zeckhauser (1977) 68.

33 Nichols & Zeckhauser (1977) 63.

34 Shapiro, S A, & McGarity, T O, Reorienting OSHA: Regulatory Alternatives and Legislative Reform, (1989) 6 *Yale Journal on Regulation*, 1-63, 2.

... described the logic to be used to determine if a substance was a carcinogen, and the specific requirements to be contained in regulations for those substances meeting the criteria. It was reasoned that if agreement could be reached on the generic issues, they would need not to be reargued each time a substance was considered for regulation. The idea of reaching such agreement could be extended to the criteria for defining a "toxic" substance or a "significant exposure level."³⁵

Despite public hearings which produced a record of 250,000 pages, the proposal was not proceeded with.

Senior NIOSH officials as advisers to OSHA, advocated the generic approach as "a more timely" method than the substance by substance basis. They suggested that generic standards could be generated for:

... cholinesterase-inhibiting substances, neurotoxic agents, reproductive hazards, cold environments, and vibration syndrome to name but a few.³⁶

They then commented that the substance-by-substance approach "often does not allow for the role of synergism." This aspect though important one in controlling work-related disease, as the officials point out, "has had little study."³⁷ Refer to #13.4 where TLVs are discussed.

It is widely acknowledged in the United States that many of the initial approaches undertaken by OSHA were little short of disastrous. A great deal stemmed from OSHA's decision at the outset to adopt over 4,000 consensus standards previously developed by the American National Standards Institute, the National Fire Protection Association and other bodies thus converting optional guidelines into mandatory requirements. When such standards were merely guidelines it was possible for them to be interpreted in a common sense fashion but, when they became mandatory standards, there was often little room for such an approach. This led to OSHA being ridiculed for unnecessary rigidity to say nothing of the presence of such trivial standards as one requiring portable toilets for cowboys.³⁸

Then there is the manner in which OSHA compliance officers operate. As Kelman commented: "American inspections are designed more as formal searches for violations of regulations ..."³⁹ In the

³⁵ Lee, J S, An Industrial Hygienist's Perspective on Generic Standards, (1989) 572 *Annals of the New York Academy of Sciences*, 93-99, 94.

³⁶ Lemen, R A, Mazzuckelli, L F, Niemeier, R W & Ahlers, H W, Occupational Safety and Health Standards. (1989) 572 *Annals of the New York Academy of Sciences*, 100-106, 104.

³⁷ Lemen *et al* (1989) 104.

³⁸ Viscusi, W K, The Structure and Enforcement of Job Safety Regulation, (1986) 49 *Law & Contemporary Problems*, 127-150, 130.

³⁹ Kelman, S, *Regulating America, Regulating Sweden*, (1981) Cambridge MA: MIT Press, 203.

United States there has been perhaps more direct political input than in other countries. Referring to the estimates of the number of inspections Viscusi comments:

Yet even this generous estimate of OSHA coverage does not suggest a large-scale inspection effort because the average site will be inspected by OSHA only once every four years.⁴⁰

Clearly the studies made in the United States of regulatory effectiveness cannot be taken as indicators of the success or failure of regulation generally.

7.11 THE NATURE OF REGULATION

Regulation can take a number of forms from an absolute duty which can, in some circumstances prove to be impracticable. The duty to securely fence moving machinery is, in some circumstances, an absolute one and the fact that such protection may render the machine inoperative matters not. In such circumstances it was held that the words "as may be reasonably practicable" cannot be imported into the statute.⁴¹

Regulations and codes may specify the action to be taken and the means that must be adopted or prescribe what has to be achieved, leaving it to the employer to comply by the most appropriate means. Then there is the dilemma as to whether personal protection is adequate rather than expensive engineering controls. As Mendeloff suggested there could be cases where sound training and education may be the most effective means.⁴² Many regulations and codes avoid the necessity of prescribing considerable detail by requiring "reasonably practicable" steps to be taken or use other similar language.

Mendeloff also points out that while there can be doubts about the efficacy of regulation aimed at preventing injury, "health standards do cover almost all the known disease threats," even though he may have been overstating the extent of the coverage.⁴³ To a considerable degree it could be claimed that health standards if soundly based and complied with will provide more certain protection than many standards aimed at preventing injury.

40 Viscusi (1986) 137.

41 *Summers (John) & Sons Ltd v Frost*, [1955] AC 740.

42 Mendeloff, J. *Regulating Safety: An Economic and Political Analysis of Occupational Health and Safety Policy* (1979) Cambridge MA: MIT Press. 26.

43 Mendeloff (1979) 27.

7.11.1 PERFORMANCE v SPECIFICATION STANDARDS

For many potential hazards better protection may be provided by the adoption of performance standards as opposed to specification standards. The former leave the employer free to use the most appropriate and/or economic measure to achieve the desired standard of protection. Whereas a specification standard may require a ladder to have rungs 25mm in diameter, a performance standard may simply require the rungs to be capable of withstanding a load of 200kg. Comments made in #7.12 on "reasonably practicable" are relevant.

To some extent the argument between performance and specification is flawed. There is no justification for considering the two alternatives as being mutually exclusive, rather that in each circumstance the most appropriate approach be adopted. Brooks is a severe critic of performance-based regulation and to some extent bases her argument on the failure of the 1974 British legislation to maintain the original improvement in the accident rate after 1981 when it began to rise substantially.⁴⁴ However other writers cite the weakening of the trade union's position for that worsening position. This is discussed later in #9.5. Here is Brooks' concluding comment in a recent article:

The legislation can and should, in at least the majority of situations, provide guidance as to what society expects, and can feasibly demand, in the quest for safe and healthy workplaces. We must redouble our efforts to provide that guidance, and to provide education as to how workplaces can be made safe and healthy. But in so far as legislation is not the *best* way to do that, or so far as, in some cases, it may not be possible to do that by legislation at all, we do not solve the problem by turning the criminal law into an arbitrary and unpredictable avenue of punishment. I believe we have gone too far and too unquestioningly down the Robens road. We should rethink our assumptions, and re-examine the implications of what we have done.⁴⁵

Nevertheless the vast number of situations for which no regulation would be practicable and the many hazardous conditions of a transitory nature that are to be found in most workplaces cannot be overlooked. In a great many cases a performance standard, despite it being rather open-ended, will provide the most practicable and inexpensive solution to many problems. After all those who daily manage or work with the multitude of hazards to be found in workplaces may often have the best answers to safety problems that arise. This could be very much aided with a more participatory approach. Depending of the technology involved, these views could be equally applicable to health

⁴⁴ Brooks, A, Rethinking Occupational Health and Safety Legislation, (1988) 30 *Journal of Industrial Relations*, 347-362, 360.

⁴⁵ Brooks (1988) 362.

hazards. A regulation may require the concentration of a toxic in the atmosphere not to exceed a certain level but the regulation would not normally specify the means that must be adopted to achieve the desired standard. That is a technical matter and could depend on a calculation of the number of air changes needed which will vary from place to place.

In the inquiry into the *Piper Alpha* disaster in the North Sea, there was unanimity of opinion among the various interests making submissions, that performance-based regulations were the preferred option for their industry. The counsel for the trade union group said:

... the present system of control by regulation was believed to lead to a primary desire to comply with regulations, rather than exert maximum effort towards total safety. He added that regulations were slow to form and difficult to change; they were inappropriate for rapidly changing technology.

What was needed in future projects, he said, was a more flexible approach with employers being responsible for deciding what was safe. He said he believed that the principles proposed in the Robens Report, as embodied in the Health and Safety at Work Act, offered a better approach to total safety.⁴⁶

The counsel for the operators commented similarly stating:

I would respectfully (sic) caution your Lordship from deciding that the solution was to prescribe detailed requirements relating to hardware on offshore installations.⁴⁷

These views have an affinity with those set out under the heading of "Reasonably Practicable" in #7.12. They seem to have influenced the Chairman of the *Piper Alpha* inquiry, Lord Cullen, who states in his report: "[r]igid regulation tends to lock safety in yesterday's technology," and prescriptive regulations, which made operators feel "legally safe" provided the "wrong sort of prop."⁴⁸

The complex nature of the administration of the regulations at the time had been thoroughly traversed by Carson well before the *Piper Alpha* tragedy including the relationships between the Department of Trade and Industry and the Health and Safety Commission/Executive.⁴⁹

46 Piper submissions – unity and conflict, *Marine Engineering Review*, April 1990, 28-29, 28.

47 *Marine Engineering Review*, (1990) 28.

48 Cullen: The Technical Implications, (1991) Jan, *Marine Engineering Review*, 42-3, 42.

49 Carson, W G, *The Other Price of Britain's Oil*, (1982) Oxford: Martin Robertson.

7.11.2 PERSONAL PROTECTION OR ENGINEERING CONTROLS

There are two possibilities for protecting workers from exposure to harmful substances. There are the passive but rather expensive static protection systems as opposed to the wearing of personal protection by the individual. For example, an expensive exhaust system which ensures that any contaminant in the workplace is kept below the threshold limit value or other standard of maximum exposure, as against the less expensive provision of individual respirators for workers which require their active co-operation as well as regular checking and maintenance. Unfortunately personal protection is often discarded on the grounds of discomfort or restriction of movement, hearing or vision.

Wilson comments on the situation in the United States as follows:

Yet, as became abundantly clear in the case of occupational safety and health, regulations are not based on scientific appraisals which are value free and incontrovertible. On the contrary, regulations frequently entail some important -- if technical -- judgements which might be questioned by politicians if they knew about the issue in sufficient detail. Thus the OSHA's attachment to engineering controls for health hazards rather than personal protective devices is not a value-free judgement but rests on the judgement that the greater ease of enforcing regulations requiring engineering controls and the unpleasantness of wearing personal protective devices outweigh the costs of requiring engineering controls⁵⁰

Clearly each situation has to be judged on its own merits. Nevertheless the discomfort many workers find in wearing much of the personal protection equipment frequently leads to some preferring to take the risk; not a situation to be encouraged. Wherever possible engineering controls are the preferred option.

7.11.3 REASONABLY PRACTICABLE

Most health and safety legislation is sprinkled with phrases such as -- "all reasonable precautions," "without reasonable cause", "reasonably necessary", "reasonably practicable", etc. Implicit in the use of that language is the thesis that there must be a balancing between the risk to the individual workers and the cost to the employer or, in some cases, to the community at large. Two judgements are frequently cited in this regard. The other side of the coin is considered under the heading of "acceptable risk" in #7.13st

. In *Edwards v National Coal Board* [1949] 1 KB 704, which was concerned with the duty of a mine owner to secure the roof of a mine, Asquith LJ stated at p. 712:

⁵⁰ Wilson, G K, *The Politics of Safety and Health: Occupational Safety and Health in the United States and Britain*, (1985) Oxford: Clarendon Press, 35.

"Reasonably practicable" is a narrower term than "physically possible" and seems to me to imply that a computation must be made by the owner, in which the quantum of risk is placed on one scale and the sacrifice involved in the measures necessary for averting the risk (whether in money, time or trouble) is placed in the other; and that if it be shown that there is a gross disproportion between them -- the risk being insignificant in relation to the sacrifice -- the defendants discharge the onus on them. Moreover, this computation falls to be made by the owner at a point in time anterior to the accident. The questions he had to answer are: (a) What measures are necessary and sufficient to prevent any breach of s. 49 (b) Are these measures reasonably practicable?

Another important case; *Marshall v Gotham Co Ltd* [1954] AC 360 concerned a gypsum mine which had a rare geological fault -- slickenside -- for which there was no known means of detection and which had not occurred in the mine before. Lord Reid said at p. 373:

... if a precaution is practicable it must be taken unless in the whole circumstances that would be unreasonable. And as men's lives may be at stake it should not lightly be held that to take a practicable precaution is unreasonable ... The danger was a very rare one. The trouble and expense involved in the use of precautions, while not prohibitive, would have been considerable. The precautions would not have afforded anything like complete protection against the danger, and their adoption would have the disadvantage of giving a false sense of security.

The significance of the last sentence lies in the fact that complete support was not possible in a gypsum mine, it differing from a coal mine where the systematic support with the use of props and roof bolts is the general practice. That aspect may well have had a substantial bearing on whether such a precaution was "reasonable" in those particular circumstances. Lord Keith later commented in the same case at p 378:

I could not, as at present advised, accept that the measure of an employer's liability can satisfactorily be determined by having regard solely to the proportion which the risk to be apprehended bears to the sacrifice in money, time or trouble involved in meeting the risk.

The question at issue in interpreting the effect of such qualifications in a statute or regulation, namely, whether a particular course of action is "reasonable" involves a weighing of cost as against benefit and for which there is no specific guidance in law other than such principles as can be derived from the above two cases and other similar ones. It is also appropriate to distinguish between risk and hazard. Refer p 58.

Baldwin raises another angle in referring to a Health and Safety Executive policy background paper concerned with regulation of lead, comparing prosecutions under the general requirement of "reasonably practicable" and those based on practicability alone (ie technically feasible). He comments:

It concluded that both sorts of provision had been used successfully and a later policy paper argued that enforcement had been equally effective under both 'practicable' and 'reasonably practicable' formulations. Many of the field enforcers, however, favoured the use of 'practicable' duties because they believed in the particular value of such duties in facilitating prosecution.⁵¹

Many would disagree that ease of prosecution should be a prime factor in determining the nature of regulation. In coming to any decision it is suggested that the nature and extent of risk being considered should be the ultimate determinant. Where the risk potential is high few would argue against the most stringent regulatory requirements.

Clearly the greater the risk, the greater the degree of care that must be adopted and this remains a matter of judgement. In assessing the degree of risk one is not only concerned with the probability of a damaging event but also the extent of any likely injury or damage. While the possibility of a melt-down of a nuclear power station may be very slight, the horrific nature of the consequences of such an event call for a very high degree of preventive action.

The wide open nature of provisions specifying reasonable practicability have been frequently criticised but the alternative would seem to involve the implementation of a great deal of highly specific regulatory measures. The volume of such measures could well be counter-productive as was so firmly pointed out in the Robens Report.

A well-respected American jurist Learned Hand conceptualized a mathematical formula which many have endeavoured to follow rather more precisely than its author probably intended.

If the probability be called P; the injury, L, and the burden, B; liability depends upon whether B is less than L multiplied by P: ie whether $B < PL$.⁵²

As Posner commented: "Hand was adumbrating, perhaps unwittingly, an economic meaning of negligence."⁵³ Comments made in Chapter 12 are relevant as are those on the "Utilitarian" Approach. (p 10) The principle may well be sound but its practicability may be very doubtful in many cases.

⁵¹ Baldwin (1990) 330.

⁵² *United States v Carroll Towing Co*, 159 F.2d 169, 173 (2d Cir. 1967).

⁵³ Posner, R A, A Theory of Negligence, (1972) 1 *Journal of Legal Studies*, 29-96, 32.

7.13 ACCEPTABLE RISK

There is that difficult question, that of "acceptable risk". While there are those who would spare no effort to ensure that the community is free from the threat of injury, there are also others who see safety legislation as threat to their economic survival or at least an affront to their freedom of action. Another facet previously referred to is the emotionalism that, sometimes, may play an undue part in any reaction to a tragic event. The often voiced comment -- that even if it saves one life, it will have been well worthwhile -- completely overlooks the possibility that another line of action, no more costly, may save more than one life. What cannot be denied is that with the deployment of limited resources, it is essential to get the greatest possible return from these efforts.

7.14 THE LIMITS OF REGULATION AND THE ROLE OF THE SYSTEM

Much more needs to be done to emphasise that compliance with regulation alone, will not ensure the safest or healthiest possible workplace. As earlier indicated the part played by the management system is fundamental to success. In a review of the health and safety legislation administered by the Maritime Division of the Ministry of Transport much emphasis was laid on quality control. After referring to the work of Dr Edwards Deming in Japan, immediately following the World War 2, where he stressed the importance of statistical methods and quality control, the report goes on to stress the relationship between quality and safety commenting:

Why have we been talking about quality when we are supposed to be concerned with safety? Because the two are inextricably intertwined, in fact safety is a subset of quality. We can show this axiomatically. Let us take Deming's definition of quality -- a product or service supplied reliably according to specification -- and let the required safety levels be part of the specification. Then it automatically follows that the product will be a safe product. This principle applies to the manufacture and maintenance of all products with which the Maritime Transport Division is involved, such as boilers, lifts, cranes, pressure and refrigerant vessels, ships and boats ... Putting it another way; a quality product is a safe product, a quality maintenance system is a safe maintenance system.⁵²

Under the heading "Cultural factors" the report continues:

These quality-system principles are only effective if quality is part of the culture of the whole firm, from top-management down. Preferably they should be accepted throughout the sector in which the firm operates, and better still they should be a feature of the national

⁵² D'Souza, K, Aldridge, W, Belt, K, Campbell, I B, & MacKenzie, H (1989) *Quality & Safety Systems*, Wellington: Maritime Transport. 51.

culture. At the level of the firm, for example, it would be futile to try to build a quality product in a slipshod factory. Lip-service and buzzwords will not produce quality and safety ... Here again we stress that such values need to be reinforced by the total national environment -- they should be evident in the behaviour of managers and the leaders of society. Such changes cannot be produced overnight. Time and effort will be required to bring them about.⁵³

Though many may feel that such an approach is not for the average medium and small undertaking but that is not so. Quality of product or service should be the aim of every undertaking large and small. Even the Testing Laboratory Registration Council (TELARC) provides a straight forward quality system called *Q-Base Code* for small firms. TELARC like the Standards Association of New Zealand (SANZ) is quality-promoting and approving institution, providing advisory standards for industry.

At this point it is interesting to recall the words of Heinrich whose 1931 text is regarded as the beginning of the scientific approach to occupational health and safety when he commented that "the control of quality and quantity of product and of the frequency and severity of accident occurrence have much in common."⁵⁴ This is equally applicable to health hazards if not more so.

Among the concluding recommendations of the Maritime Transport report is the following:

The Role of Government in safety matters should be as far as possible purely regulatory and exemplary:

- * promoting the use of Total Quality Management in industry, education and training, and government service-delivery agencies,
- * using Total Quality Management as the management system for the government's own regulatory agencies, particularly those dealing with quality, safety and health matters,
- * performing quality/safety audits,
- * setting broad guidelines and standards,
- * encouraging hazard prevention,
- * encouraging the participation of all main actors in safety-related matters,
- * ensuring responsibility is taken where it belongs, and
- * enforcing compliance, or preventing non-compliance, through rigorous measures and sanctions where necessary.⁵⁵

53 D'Souza et al (1989) 51.

54 Heinrich, H W, (1941) *Industrial Accident Prevention: A Scientific Approach* 2nd Ed New York: McGraw Hill, 40.

55 D'Souza et al (1989) 115.

The report then went on to recommend:

... replacing the present official safety inspections (a government responsibility) with quality/safety systems in industry (a responsibility of those generating, managing, and working with risks).⁵⁶

and that:

*Safety is a subset of quality, and using a quality and safety systems approach to achieve safety offers higher levels of safety and provides net benefits of a high order to the national economy.*⁵⁷

Though the words safety are frequently repeated in the above extracts it is implicit that where appropriate the comments are equally relevant to the health hazards. Furthermore where industry is involved in the manufacture, transport or use of chemicals and substances that can be a hazard to health, the safe physical containment of those substances is a matter of paramount importance.

7.15 THE STYLE OF ENFORCEMENT

Enforcers have broadly two avenues open to them as well as a judicious mix of the two always bearing in mind that the primary objective is to ensure that the law is obeyed. The most favoured method embodies persuading, informing and educating. At the other extreme would be the rigid application of sanctions. It is suggested that enforcement should not be viewed merely as the manner in which the enforcers operate. It embraces the whole process from the drafting of legislation, regulations and codes, the degree of consultation with interested parties. It would also include an assessment of the degree of need, the extent of the hazards being considered, the probability of harm, the numbers at risk and the potential for injury and disease of substantial proportions. Nevertheless even small groups deserve adequate protection. Much will depend adequate and reliable data, often the weakest link.

Without doubt the style of enforcement is just as important as the regulations themselves. In other words how do the enforcers go about their task? In the United States OSHA has been widely criticised in the past for its style of inspection which involves enforcement officers merely looking for breaches. The administration has been making serious endeavours to alter that image. Recently OSHA has made substantial changes to its enforcement policy. It involves both a policy of imposing heavy fines for wilful violations and a conciliatory and cooperative approach as one commentator put it:

⁵⁶ D'Souza et al (1989) 116.

⁵⁷ D'Souza et al (1989) 117.

Work in good faith with OSHA, and the agency will take a cooperative approach. Play hardball, and expect the agency to play hardball right back.⁵⁸

OSHA has a policy of not inspecting an employer where the firms records show a low accident rate unless there is a complaint or a fatality. The success of such a targeting programme is reliant on conscientious reporting of accidents and diseases. What has been referred to as:

... the 'megafine' approach to the enforcement of OSHA began with large fines for wilful violations of record keeping regulations.⁵⁹

This latter approach could be given greater attention in New Zealand, especially in view of the dearth of statistical data. The article concludes:

In the last analysis, the policy will prove its worth if the results are to make the nation's workplaces safer.⁶⁰

Clearly the success of the changed approach has yet to be determined but perhaps the important factor is the willingness of the administration to try new methods. There remains the possibility of targeting observed conditions as suggested by the Law Commission and referred to on p 123.

7.16 EMPLOYERS' POLICY STATEMENTS

In Britain, following on from the requirement of s 2 (3) of the Health and Safety at Work Etc Act 1974 that every employer shall prepare and promulgate to the workforce:

... a written statement of his general policy with respect the health and safety at work of his employees and the organisation and arrangements for the time being in force for carrying out that policy ...

The 1990 Bill embodied such a provision for New Zealand which was more extensive than its British counterpart. In Britain many employers merely copied draft policy statements that had been prepared by employer organisations or other employers without giving the matter any real consideration to their own position. The 1990 New Zealand proposal was drafted in an endeavour to overcome that situation.

7.17 STRICT ENFORCEMENT VERSUS PERSUASION, ADVICE AND INFORMATION

One could seriously question whether it is logical to view these two approaches as alternatives. Clearly it would be completely unrealistic if an enforcement officer were to be precluded from giving

⁵⁸ Swankin, D, Washington Report, (1989) 34 (12) *Professional Safety* 5, 32, 32.

⁵⁹ Swankin, D, Washington Report, (1990) 35 (1) *Professional Safety* 5.

⁶⁰ Washington Report (1990) 24.

advice and information. In the past, failure to give advice as to how to comply with a particular regulation was the source of frequent complaints from employers. Surely it cannot be undesirable for an employer to be persuaded to comply with the law or even helped to do so? The alternative to persuasion would seem clearly to be the institution of a massive number of prosecutions and other formal approaches, with their consequent administrative demands on inspectors who, if not so burdened, could otherwise be active in the field.

On the other hand, few would question the desirability of instituting prosecutions in cases of a serious or wilful nature as is suggested above. It thus becomes a matter of judgement as to which course is to be followed in particular circumstances and it is certainly not merely a choice of either of two approaches, rather a judicious blending of both.

7.18 PSYCHOLOGICAL FACTORS INFLUENCING COMPLIANCE

Miller undertook a study for the Canadian Federal Department of Justice which came to some interesting conclusions.⁶¹ He lists six general approaches by which compliance can be facilitated.

- 1 Enhance the perceived fairness of the regulation.
- 2 Enhance the perceived fairness of the enforcement and monitoring of the regulation.
- 3 Enhance the regulatee's knowledge of the regulation.
- 4 Enhance the regulatee's commitment to the regulation.
- 5 Enhance the regulatee's feeling of personal responsibility for his compliance record.
- 6 Enhance the economic profit associated with compliance and the economic cost associated with noncompliance.

Miller then went on to consider the characteristics that would determine whether or not an enforcement officer would be effective and listed: reward power, coercive power, legitimate power, referent power and expert power, commenting:

Referent power is more subtle than reward or coercive power, but it can be equally effective. For example, while all military leaders or corporation managers have reward, coercive and, to a lesser extent, legitimate power over subordinates, it is those with referent power that have the greatest influence. A person who commands a great deal of referent power is often termed charismatic.⁶²

and later:

⁶¹ Miller, D T, *Psychological Factors Influencing Compliance* (1985) Ottawa: Department of Justice, Mimeo, 29.

⁶² Miller (1985) 31.

Descriptions of "good inspectors" all reveal individuals whose influence extends well beyond reward and coercive power. Effective inspectors utilize referent and expert power extensively, often more than reward and coercive power.⁶³

Then Miller suggests that an inspector's referent power over regulatees will increase to the extent that he: acts fairly, demonstrates a willingness to reciprocate and negotiate with a regulatee, demonstrates trust in the regulatee. And finally:

The psychological principles underlying compliance gain greater significance as regulatory agencies rely less and less on legalism and economism to induce compliance. Even when legalism and economism (reward and coercive power) constitute the main means of inducing compliance, psychological factors are still important. This is especially true if regulatory agencies wish to foster attitudes and behaviour that are consistent with the spirit and not just the letter of the law.⁶⁴

Miller's study is backed up with an impressive list of references and one is left with the very clear impression that for the regulatory measures to be effective, there are many roads to travel and the sooner that some of these approaches are given attention, the better.

7.19 EMPLOYER OPPOSITION TO ASPECTS OF REGULATION

It is more than a little disappointing that so many of the progressive moves to provide a more effective approach to regulation do not find favour with some employers who have a marked preference for voluntary standards and direct negotiations with individual workers. It is strongly suggested that these attitudes stem from an inadequate appreciation of causation and the tendency to blame the victim.

Unfortunately in the recent White Paper on Accident Compensation, the very short section on accident prevention pins its argument on the view that "[e]xperience rating will remind employers of the cost benefits in reducing the incidence of accidents."⁶⁵ No mention is made of occupational disease. It could be inferred from that proposition that employers will pay more attention to prevention, the basis of which is merely obeying the law, if there is a financial incentive. From that proposition it can be implied that lacking such an incentive the desired steps will not be taken. However it is clear from an earlier comment in the White Paper that experience rating is being justified more on equity grounds.⁶⁶

63 Miller (1985) 21.

64 Miller (1985) 35.

65 Birch (1991) 62.

66 Birch (1991) 23.

One would have hoped for an indication of a more positive approach than merely sending the right "signals" to employers. After all experience rating is action after the event. This can be contrasted for the more positive predictive approach recommended by the Law Commission of "creating a power to impose penalties by reference to observed conditions."⁶⁷ Refer to #11.9 regarding experience rating and #11.12 regarding methods adopted in British Columbia.

7.20 IMPEDIMENTS TO BETTER COMPLIANCE

As indicated in #7.19 there has been opposition to many regulatory measures, both existing and proposed and it is logical to consider possible explanations for at least some of that opposition. This has been more evident with respect to the participatory approach which is discussed in Chapter 9. It is suggested that many misapprehensions arise through an inadequate appreciation of the cause of injury and disease combined with a tendency to "blame the victim. There is also the strong probability that the latter tendency arises from the accident proneness theory.

7.21 THE NEED FOR A BETTER UNDERSTANDING OF BASIC CAUSATION

As with other aspects of the problem of work related disease there needs to be much better understanding of the underlying causation of disease and injury and the importance of the part played by the management system. Without that change misconceptions will continue to hamper the efforts of those seeking to bring about the necessary improvements. Above all, victim-blaming is to be completely rejected unless there is clear and compelling evidence.

The causes of injury and illness can be complex and in some cases will only be fully understood after a searching inquiry which often needs to be carried out on a multidisciplinary basis. Many theories as to basic causation have been postulated from Heinrich's 1931 domino theory on and in the main the emphasis has gradually changed from the individual to the system, its management and control. As Stapleton in her critique of Hart and Honoré's comprehensive text *Causation in the Law* states:

Causation is a topic of central importance in the understanding of legal thought and case law. Yet relatively little emphasis seems to be put on it in law courses. ... As a result law students, practitioners and academics often either grossly simplify or completely neglect causal issues.⁶⁸

⁶⁷ Law Commission (1988) 39.

⁶⁸ Stapleton, J, *Law, Causation and Common Sense*, (1988) 8 *Oxford Journal of Legal Studies*, 111-131, 111.

Yet an understanding of causation is central to the determination of the condition, activity or other issue that we seek to correct. To practitioners in the field of prevention it is an issue of fact with fine points of law to be completely eschewed. Nevertheless while legal implications cannot be overlooked, the approaches to preventive activity that have gained favour more recently, are reliant on a better understanding of causation.

It is still insufficiently recognized that accidental injury and work-related disease seldom occur as the result of one factor alone, for most injuries and diseases arise as a result of several factors some of which may be completely unrelated. As Hart and Honoré put it:

It seems easy here to be misled by the natural metaphor of a single causal 'chain,' which may lead us to think that the causal process consists of a series of single events, each of which is dependent upon (would not have occurred without) its predecessor in the 'chain' and so is dependent on the initiating action or event. In truth in any causal process, we have at each phase not single events, but complex sets of conditions, and among these conditions are some which are not only subsequent to, but independent of the initiating action or event.⁶⁹

Much of this misunderstanding stems from inadequate investigation of accidents and their causation. For example Perry reports that a reduction in the budget of the United States Mines Safety Administration was advocated in the United States Senate "on the view that miners' fatalities result primarily from miners' carelessness."⁷⁰

For too long attention paid to unsafe acts and conditions has resulted in the hasty determination of a single cause as suggested by Johnson with his Management Oversight and Risk tree (MORT). MORT is similar to fault-tree analysis and illustrates in graphic fashion how the various elements may link and combine to cause some unwanted outcome.⁷¹ As the Ham Report states:

The Commission believes that emphasis on unsafe conditions and unsafe acts falsely dichotomizes and greatly oversimplifies the organic circumstances out of which accidents arise.⁷²

⁶⁹ Hart, H L A, & Honoré, A M, *Causation in the Law*, (1959) Oxford: Clarendon Press, 67.

⁷⁰ Perry, C S, Government Regulation of Coal Mine Safety, (1982) 10 *American Politics Quarterly*, 303-314, 304.

⁷¹ Johnson, W G, *MORT Safety Assurance Systems*, (1980) New York: Marcel Dekker.

⁷² *Report of the Royal Commission on the Health and Safety of Workers in Mines*, (The Ham Report) (1976) Toronto: Ministry of the Attorney General. 119.

Often inquiries focus on the obvious, ignoring the real underlying causation. As with so many other factors which hamper preventive measures, only education over time will result in the much needed improvement. It was not until 1968 that the official New Zealand statistics of industrial accidents ceased to use "cause" to identify what were a mixed bag of "agencies of the injury" or the "types of accidents." For example "machinery" and "slipping, tripping and falling." The well-known Z16 standards for recording and measuring work injury experience of the American National Standards Institute do not attempt to determine causation statistically. Frequently emotional factors may unduly influence views formed by decision makers. Thus with good reason have many writers expounded on "the myth of the careless worker." Refer Mathews, and Page and O'Brien.^{73,74} Perry's comment quoted above is another example. However, among other recent developments, the science of ergonomics is now giving us a another insight into causation.

7.22 VICTIM BLAMING

One of the greatest difficulties facing those advocating increased and more effective preventive measures is that of "victim blaming." Many hold a conviction that numerous accident and, to a lesser extent, disease victims are the authors of their own misfortune. True, often a superficial examination of the circumstances surrounding an accident will suggest that to be the case but one needs to look deeper. Is there not, for example, a world of difference between a motorist who is injured as a consequence of undertaking a reckless overtaking manoeuvre on a narrow winding road and a factory worker injured while using a machine with a safety device deliberately put out of action to speed production or make the job easier? In the factory, it is the responsibility of management to set up and supervise a system which will ensure that such events are kept to an absolute minimum if not completely eliminated and for that purpose, providing a sound system, competent middle management and supervisors. In contrast, on the highway, the average driver is largely a free agent responsible for setting up, managing and supervising his or her own system against a background of their individual concept of safety.

McDonald gives an interesting example of a tractor driver who was killed in an explosion after using a lighted match to look into the fuel tank of his tractor to determine the fuel remaining. While such a victim could be considered as an "idiot who was beyond protection," there were other factors to be considered:

- 1 No fuel gauge on tractor

⁷³ Mathews, J, *Health and Safety at Work: Australian Trade Union Safety Representatives Handbook*, (1985) Sydney: Pluto, 5.

⁷⁴ Page, J A, & O'Brien, M-W, *Bitter Wages*, (1973) New York: Grossman, 145.

- 2 Fuel level can be seen through the filter pipe
- 3 Inadequate natural light to show level
- 4 Use of petrol rather than diesel
- 5 Nothing clean and convenient to dip the fuel tank
- 6 Use of naked flame near flammable level

He comments:

The above example illustrates extremely well the effects of emotion, facilitated by cause-blame terminology and thinking.⁷⁵

This is a very good example of the importance of the influence the totality of the management system can play.

7.23 ACCIDENT PRONENESS

Though the concept of accident proneness would have limited relevance to occupational disease, nevertheless attitudes formed by a failure to appreciate its reality, could affect management, enforcer and even union attitudes to many preventive measures, including those concerned with the health hazards thus reinforcing the tendency to "blame the victim." Then too, exposure to harmful contaminants may occur as a consequence of a failure on the part of an individual. However in the original studies of munition workers in World War 1, it was that some workers had more accidents than the numbers predicted on the pure chance theory, which led to the development of the accident proneness theory.⁷⁶ However, this term was not coined until some years later by other researchers. This and other factors no doubt led to McKenna preferring to use the term "differential accident involvement."⁷⁷

The accident proneness theory has been responsible for one of the most unprofitable debates in the safety field. What is worse, it has, on occasions, been used to the detriment of genuine preventive measures often as an excuse for inactivity. One of the more detailed studies, that of Arbous and Kerrich comments that this concentration on personal attributes has resulted in "... an attempt to shift the blame from the environment to the individual, calling people and not workplaces, accident prone."⁷⁸

⁷⁵ McDonald, G, *Understanding Accident Phenomena > The Damage Occurrence > Qualitatively and Quantatively*, (1986) International Conference Adelaide, mimeo.

⁷⁶ Greenwood, M & Wood, H, (1919) *Reports of the Industrial Research Board, No 4, The Incidence of Industrial Accidents upon Individuals with Special Reference to Multiple Accidents*, London: HMSO.

⁷⁷ McKenna, P, *Accident Proneness: A Conceptual Analysis*, (1983) 15 *Accident Analysis & Prevention*, 65-71.

⁷⁸ Arbous, A G & Kerrich, J E, *Accident Statistics and the Concept of Accident Proneness, Part 1*, (1951) 7 *Biometrics*, 341-390. 363.

These aspects need to be examined and put in their proper perspective. Obviously all people do not have the same degree of perception, co-ordination and dexterity and thus even in a group of similar individuals there will be differing degrees of performance. Furthermore one's ability to undertake a particular task is not constant and may vary in response to a host of factors including health, personal problems, stress in its many forms, etc; all of which may vary over time.

Much misunderstanding has been caused by the widely differing concepts, that many have concerning accident proneness, a term that can be subject to numerous and diverse interpretations. Several factors enter into the argument and clearly the first to consider is causation. It cannot be assumed that an injured person may be even partially the author of his or her own misfortune. Even in cases where a person may be plainly guilty of some inattention or disregard of rules, one needs to look further. There may have been some external factors influencing events such as pressure to complete a task, tiredness brought on by long working hours, family problems etc.

In addition to the very comprehensive paper of Arbous and Kerrich, the other major work undertaken in recent years is that by Shaw and Sichel.⁷⁹ In her concluding chapter Shaw, after analysing the various studies and pointing out the weaknesses in the methodology used by some researchers commented:

One of the ways I have tried ... to show that the actual research findings do not support extreme thinking in either direction: in fact the only policy they support is a truly moderate one which conceives of accidents as having many causes ...⁸⁰

Surry after discussing the instability of the proneness theory comments:

The apparent instability of accident proneness was cause for reappraisal of the concept, since no form of prediction can be useful if the subject's proneness level varies from one time to another. An example of the apparent uselessness of prediction of "prones" is taken from Adelstein's accident data on 104 shunters over three years.⁸¹ He reports the effect of removing the records of 10% of the men with the highest accident rates in the first year from the data of the following two years. In this case the annual accident rate actually went up a trifle when the first year's "worst" ten men were hypothetically removed.⁸²

79 Shaw, L & Sichel, S, (1971) *Accident Proneness*, Oxford: Pergamon.

80 Shaw & Sichel (1971) 419.

81 Adelstein, A M, Accident Proneness: A Criticism of the Concept Based on Analysis of Shunters' Accidents, (1952) 115 *Journal of the Royal Statistical Society, Series A*, 354-410.

82 Surry, J, *Industrial Accident Research: A Human Engineering Appraisal*, (1969) Toronto: University of Toronto, 165.

What appears to be overlooked by those who make much of the proneness theory is that, even accepting there will be some who are more likely to be injured than others, is their failure to determine to what practical use can that knowledge be put. Can those individuals be identified and restricted to activities where their unfortunate characteristics will no longer be a risk and if so, upon whom will such decisions fall? What would appear to be a more sensible and practical approach would be to see that all accident-provocative situations are kept to the minimum. In the end perhaps the most disastrous effect of the whole debate is the emphasis it has given to the tendency to blame the victim.

7.24 LESSONS FOR NEW ZEALAND

There is much that has been outlined in this chapter that could profitably be applied in New Zealand, and regrettably many of those factors are set out in the seemingly ignored ACOSH Report. It is fairly clear that much of the inertia and, at times, outright opposition stems from an inadequate appreciation of the reality of occupational safety and health. In many cases it would seem to be just blind prejudice.

A strong and well resourced Occupational Health and Safety Commission could, in time, generate a much better understanding of the need for effective regulation as a first step to safer and healthier workplaces. Though a number of distinguished safety practitioners have visited New Zealand over the last three decades and all have not only stressed the close link between safe and healthy workplaces and efficiency, quality and profitability, the message has largely gone unheard. One would have hoped for a stronger indication from Government that it meant business rather than merely heeding employer demands that the cost of Accident Compensation be reduced.

Before advocating change it is necessary to consider what evidence there may be of the effectiveness of any possible change in regulatory strategy.

CHAPTER 8

THE EFFECTIVENESS OF REGULATION

8.1 RESEARCH INTO THE EFFECTIVENESS OF REGULATION

A number of researchers have endeavoured to determine the effectiveness of regulation in preventing accidental injury and disease. Though the bulk of this research has been concerned with accidents rather than disease, nevertheless it is reasonable to accept that much of what has been written would also apply, at least to some extent, to disease. Though as Nichols points out "safety is not health" while Wilson comments that "occupational health involves different issues from occupational safety and is far more important." Refer to the comments of Nichols at p 3 and Wilson on p 5.

In addition, there have been numerous studies looking at the efficacy of regulation in its wider application. The conclusions of many of much of this research is relevant to the regulation of occupational health and safety; that relating to pollution being particularly so. Fenn and Veljanovski, for example, begin their paper by stating:

The enforcement of regulation and government controls is complex and to a large extent determines the effects of the law. Yet it is surprising how many discussions of government regulation implicitly assume that laws are somehow self-enforcing and that there is full compliance. This tendency is even evident in the economic literature, where regulation is evaluated in terms of the impact that the rules of law will have on costs, on the competitiveness of industry or controlling undesirable activity such as crime and pollution, with little attention being devoted to the nature of enforcement.¹

In some fields there is ample evidence that many laws and regulations are broken seemingly with impunity; one has only to think of the traffic regulations, this even despite the natural instinct for self-preservation that every driver possesses. But even on the highway, the vast majority of the driving

¹ Fenn, P & Veljanovski, C G, A Positive Economic Theory of Regulatory Enforcement, (1988) 98 *The Economic Journal*, 1055-1070, 1055.

public make a reasonable effort to comply, for were it otherwise, utter chaos would prevail. It is suggested that two factors could be important. One would be the acceptance by the community that the legal requirements are reasonable and the other would be the ability of the appropriate authority to enforce the regulations.

In a paper presented to an international conference at Adelaide in 1986 Wigglesworth surprised many with his comment after asking the question -- "How effective is modern safety legislation?" After referring to the fact that we really do not know how many have escaped injury by reason of the legislation, he then asked:

How ethical is it to promote a strategy when the effectiveness is not known? To take a parallel instance, how ethical would we deem the behaviour of a physician who prescribed a course of drug therapy without knowledge of the expected outcome? We would of course deem such behaviour unethical.²

After citing studies that had been made into the effectiveness of legislation in the United States, Canada, Britain, Australia and Holland Wigglesworth concluded:

... the evidence presented here suggests that there are now serious limitations to the effectiveness of safety legislation in today's complex societies.³

Later referring to research that emphasised the value of passive preventive measures; those that were independent of human behaviour, he then advocated the need "to ensure -- if need be by legislation -- that adequate expertise is at all times available to the organisation concerned." He then went on to stress the need for "the identification and acceptance of a specialist body of knowledge on occupational safety and health and ... that of accreditation."

Plainly in Wigglesworth's view there must be a close link between effectiveness and the relevance of the current legislation to today's work environment and the qualifications and ability of those whose duty it is to implement and enforce that legislation. Wigglesworth's views have an affinity with the West German legislation, where:

In 1973, a law became effective which requires that at every workplace where more than 20 are employed, there shall be a doctor and an occupational safety specialist. Their function is to advise and support their employer's safety promotional activities. Only the largest

² Wigglesworth, E C, *How effective is Safety Legislation? The Harold Thomas Oration*, (1986) International Conference, Adelaide, Mimeo.

³ Wigglesworth (1986) 7.

employers would be required to have such expert assistance on a full-time basis whilst for small and medium sized enterprises, the requirement would be determined on a sliding scale dependent on both the numbers employed and the degree of hazard of the undertaking.⁴

Few would question the need for standards relating to health and safety in the workplace, but there could be considerable debate on the need for and the extent of particular standards and the means by which those standards may be enforced. Certainly from whatever stance we view the problem of ensuring improved safety and health in our workplaces, we are considering the deployment and expenditure of limited resources. Thus consideration should not only be given to identifying the accident-provocative situations and conditions detrimental to health, that we seek to eliminate or alleviate, but also to assess their respective priorities. Then the suggested remedial action must be considered, not only in terms of priorities, but also of probable effectiveness.

To make such judgements any legislator or enforcement agency or industry needs adequate and reliable data, as well as in-depth research; elements which are so frequently not available to them. Consequently they are forced to fall back on hunches, intuitive thinking or political expediency upon which Arbous pertinently comments:

Some of these are sound and well substantiated by research findings. Others are rather shaky and arise out of investigations of doubtful and inconclusive nature; and still others are merely the result of armchair speculations which at times reveal great perspicacity of thought but more often reflect the personal prejudice of the thinker.⁵

8.2 INTERNATIONAL COMPARISONS

When considering research findings from other countries, especially with respect to the nature of regulation, its implementation and enforcement, it is essential to bear in mind that considerable differences exist between many countries. Much of the research has been undertaken in the United States; and interpreting those endeavours one has to pay due regard to the substantial disparity between the American scene and what we have come to expect in the British tradition. In the United States the business community has spared no effort in opposing any extension of government regulation. In no

⁴ Campbell, I B, *Legislating for Workplace Hazards in New Zealand: Overseas Experience and Our Present and Future Needs*, (1987) Palmerston North: Massey University, 25.

⁵ Arbous, A G, & Kerrich, J E, Accident Statistics and the Concept of Accident Proneness, Part 1, (1951) 7 *Biometrics*, 341-390, 343.

aspect has this been more apparent than with OSHA's attempts to regulate the health hazards of the working environment. OSHA's proposed regulations have been vigorously opposed, even right up to the Supreme Court. This has been discussed in #7.10. As Wilson comments:

In fact, only a handful of health regulations, invariably more expensive for industry than safety regulations, have been adopted by OSHA and sustained by the Courts: vinyl chloride, cotton dust, asbestos, ethyleneimine, coke oven regulations, and part of a lead regulation. OSHA issued an apparently large number -- 450 -- of threshold limit standards controlling worker exposure to chemicals. But all but twenty-three of these were simply reaffirmations of voluntary standards used by industry prior to the creation of OSHA in 1970 and resting on quite inadequate and outdated scientific research. Most of the exposure limits are far too high ... as to expensive health standards, American employers have been aroused by barks, not bites from OSHA.⁶

New Zealand relies almost exclusively on those same threshold limit values which are more fully discussed in Chapter 13.

As we read the various studies on the effectiveness of regulations that have been undertaken in countries such as Canada, the United States and Great Britain, it is only logical to ask how effective is our own legislation. Obviously had such legislation never been implemented it is not too unreasonable to suggest that the position would be far worse than it is today. Unfortunately in the absence of New Zealand-based studies, similar to those that have been undertaken overseas, we can only speculate but it would be foolish to ignore the indications that can be distilled from much of the overseas research. Nevertheless some caution is necessary especially where enforcement measures differ substantially from those practiced in New Zealand. It seems fairly evident that would be the case in the United States with OSHA. There, the enforcement officers have been, until relatively recently, simply looking for breaches of regulations except where the check is merely of the records especially accident rates. Only lately has OSHA moved to build up a consultative role. In Britain, on the other hand, the emphasis is initially on auditing the quality of the management system and where that system is clearly deficient, then the inspection may well turn to examine compliance with the regulations.

Robens reported on two studies that were done in Britain that concluded that possibly only about 20% of accidents involve a breach of a regulation.⁷ It is significant that those studies reached a similar conclusion to one undertaken in California that was concerned with fatal accidents.⁸ Of more than

6 Wilson, G K, *The Politics of Safety and Health: Occupational Safety and Health in the United States and Britain*, (1985) Oxford: Clarendon Press. 155.

7 Committee on Safety and Health at Work, *Safety and Health at Work: Report of the Committee*, 1972) Cmnd 5072, London: HMSO, (The Robens Report), 8.

8 Mendeloff, J, The role of OSHA in Serious Workplace Accidents, (1984) 25 *Journal of Occupational Medicine*, 350-360.

passing interest is the fact that this Californian study also found that 12 of the 20 most cited violations were never mentioned in connection with accidents, leaving the possibility that they caused only minor injuries.

A study often quoted is that undertaken by Sands which compares the regulation of the construction industry in the states of Ohio and Michigan. It was described "[t]he only quantitative examination of the effectiveness of safety regulation ..."⁹ These two states were chosen because of their wide differences representing "opposite extremes in so far as the government influence on, and control of safety activities ...". Michigan had a law of some antiquity with really no effective enforcement provisions and penalties, the Department of Labor was greatly under-staffed and the funding for enforcement was meagre. In Ohio, on the other hand, the position was quite the reverse but despite the substantial safety services and enforcement provided in that state it did not have a significantly lower injury rate or seem to promote increased safety precautions, while Workers' Compensation costs seemed to be higher than in Michigan.¹⁰

8.3 CONCLUSIONS FROM OVERSEAS RESEARCH

Because research devoted to the incidence and causes of workplace accidents and disease has been relatively limited, many countermeasures, both legislative and otherwise, have been made in response to hunches, intuitive thinking, etc, as suggested by Arbous, (p 132) rather than to any measured assessment of the actual situation. As Haddon *et al* put it after pointing out the tremendous effort that went into developing the Salk vaccine and proving its cost efficacy and relative safety:

One can, of course, argue that the introduction of essentially unevaluated prevention measures "can't do any harm," but the potential dangers in this approach need to be noted. First, the introduction and enforcement of insufficiently evaluated measures may lead to an inappropriate choice of emphasis and may, as a result, dissipate funds, time and public concern that might be applied to more effective measures. Secondly, the public and its government may conclude that everything that can be done is being done.¹¹

9 *Compendium on Workers' Compensation*. (1973) Washington DC: USGPO, 290.

10 Sands, P E, How Effective is Safety Legislation? (1968) 11 *Journal of Law and Economics*, 161-174.

11 Haddon, W, Suchman, E & Klein, D, *Accident Research: Methods and Approaches*, (1964) New York: Harper Row, 5.

Though the above quotation dates from 1964, the progress that has been made in the intervening years has not been great. Those whose responsibility it is to initiate improved health and safety measures still need better indicators for action and even more importantly, the means to gauge more accurately the effectiveness of those measures. Lack of adequate and reliable statistical data is a problem common to all countries. With good reason did the Law Commission in its report on Accident Compensation make frequent references to the dearth of useful statistics commenting in its summary:

This can and should be gathered together in ways which would show where and how the most effective efforts are to be made.¹²

Recognising the costs that some employers face in complying, Viscusi makes a novel suggestion:

Suppose OSHA fined firms according to their health and safety performance or workplace conditions, with the level of the fine reflecting the marginal benefits of additional improvements. Enterprises with high risk levels or with very severe types of injuries would pay a higher fine. Firms could decide whether or not to comply based on the costs involved. The advantages of this approach is that the marginal benefits and marginal costs of compliance could be equated on a decentralized basis, ensuring efficient levels of health and safety. A hazard penalty of this type parallels proposals that water pollution be controlled by imposing effluent charges on polluters.¹³

Even accepting the desirability of such an approach, it seems to leave wide open the practicability of assessing the costs and benefits whether on the part of the enforcer or the employer. Nevertheless this view has been widely advocated in the United States particularly by some economists. Cost-benefit is discussed in Chapter 12.

Ellis in his review of safety research comments on safety laws and inspections as follows:

Despite a widespread belief that safety inspections by government and insurance representatives are effective in reducing accidents, sound scientific evidence is lacking. Lacking such evidence, many arguments for the beneficial effects of safety inspections were based on fragmentary facts seemingly chosen as consistent with one's position.¹⁴

Unfortunately Ellis gives no indication of the extent to which his conclusions could be applied to health hazards though in many contexts it can be taken that safety inspections embody those concerned with health issues.

12 *Personal Injury: Prevention and Recovery, Report No 4*, (1988) Wellington: Law Commission, xi.

13 Viscusi, W K, *Risk by Choice: Regulating Health and Safety in the Workplace*, (1983) Cambridge MA: Harvard University Press, 116.

14 Ellis, L, A Review of Research on Efforts to Promote Occupational Safety, (1975) 7 *Journal of Safety Research*, 180-9, 181.

Though Bartel and Thomas reporting on an examination of OSHA's impact with respect to accidents excluded health effects, their conclusions are nevertheless of interest. They excluded consideration of the health effects of the workplace as:

The link between occupational illness and workplace characteristics is very difficult to establish because of time lags and multiple causations of illness, and therefore we believe it appropriate to focus on OSHA activities that pertain to occupational injuries.¹⁵

They looked at two hypotheses; first, the non-compliance one that argued that because of limited statutory and budgetary authority, OSHA is unable to compel compliance with its own standards; second, the inefficacy hypothesis, namely that the Act was itself flawed, as it emphasises capital equipment when most accidents are caused by complex epidemiological interactions of labour, equipment and the workplace environment. The study found only weak linkages between non-compliance and workplace accidents, indicating that the inefficacy hypothesis was largely correct. It was considered, however, it could not be taken that OSHA standards achieve no reduction. On the other hand, they concluded that there are significant effects of OSHA enforcement on industry violation rates, suggesting that the noncompliance hypothesis is false. However, from a policy perspective, it was considered that continued enforcement of standards could produce, at best, only an extremely minimal effect on work injury rates.

Also of interest are two studies of the effect of safety legislation in the United States coal mines; Lewis-Beck and Alford,¹⁶ and Perry. The latter concludes:

Judging from bituminous coal mine fatality rates, government enforcement efforts represented by mine health and safety spending are remarkably effective when laws are strong. When laws are weak ... it is probably safer to conclude that spending is simply ineffective in these circumstances.¹⁷

It has been pointed out that, though the number of Mine Safety and Health Act inspectors is similar to those employed by OSHA, they have a responsibility for many fewer workplaces. On the same ratio to workplaces, OSHA would need to have 750,000 inspectors.¹⁸ [applying the same ratio to the New

15 Bartel, A P & Thomas, L S, Direct and Indirect effects of Regulation: A New Outlook on OSHA's Impact, (1985) 20 *Journal of Law and Economics*, 1-25, 10.

16 Lewis-Beck, M S & Alford, J R, Can Government Regulate Safety? The Coal Mine Example, (1980) 74 *American Political Science Review*, 745-756.

17 Perry, C S, Government Regulation of Coal Mine Safety, (1982) 10 *American Politics Quarterly*, 303-314, 310.

18 Froines, J R, in Round Table Discussion, (1989) 572 *Annals of the New York Academy of Sciences*, 222.

Zealand workforce the number of inspectors would be about 10,000. In New Zealand in 1989 there were 855 coal miners and in 1991 the number of inspections was expected to be about 550]¹⁹ The health hazards of United States coal mines have only relatively recently received a great deal of attention with the passing of the *Coal Mine Health and Safety Act of 1969* and *Black Lung Benefits Act of 1972*.

An example of a regulation frequently cited as a successful one is the British *Power Presses Regulations 1965*. That these regulations resulted in a substantial drop in power press accidents could well be due to the fact that not only were they highly specific but they were also accompanied by thorough training of operators and tool setters. Refer to #12.5. Furthermore their implementation was preceded by detailed studies and the regulations thus seem to be in accord with the four principles suggested by Wigglesworth:

There must be knowledge of the legislative requirements, which must be easy of comprehension; they should be technically practicable; there should be adequate motivation towards compliance; and they should permit ready detection of non-compliance.²⁰,

Thus from Wigglesworth's principles and the other comments quoted above there seems to emerge the conclusion that the effectiveness of any regulatory measure is firstly dependent on its own structure apart from any question of the commitment to its actual enforcement. The view expressed in the Robens Report that a plethora of unsatisfactory and often near incomprehensible regulations are counter-productive is borne out. Again the need is for more data, especially research into causation as an essential prelude to the design and implementation of any countermeasure including the regulatory approach.

An Australian study concerned with a lack of enforcement of coal mine safety regulations concluded:

The enforcement of the Coal Mine Regulation Act is far from adequate. This is in part due to the inspector's preference for persuasion rather than prosecution, but it is in part due also to the escape clauses and other enforcement difficulties built into the Act itself. What this analysis demonstrates is that the distinction between enactment and enforcement made by those who have studied the symbolic effects of legislation is somewhat overdrawn. Statutes which purport to control business activity are not ineffective simply because of a failure at

¹⁹ Information supplied by the Energy and Resources Division of the Ministry of Commerce.

²⁰ Wigglesworth, E C, *Legislation and Injury Control*, (1978) 10 *Medicine, Science and the Law*, 191-9, 194.

the enforcement level. They are ineffective, also, because of the success of business interests at the legislative level in nullifying the impact of the prohibitions to which they are *prima facie* subject.²¹

Some would maintain that the situation in New Zealand could be similar in many industries. The opposition to any suggestion of compulsion with respect to workers' health and safety representatives and of joint management-labour committees could be cited as evidence of this view.

8.4 MEASURES OF SAFETY PERFORMANCE

Senneck is critical of a study by Greenberg which attempted to evaluate the effectiveness of the British factory inspectorate in influencing safety by correlating a number of variables over a 19-year period.²² However the conclusions were based almost entirely on the annual numbers of over-3-day absences. Senneck points out that in almost the same period the ratio of over-3-day injuries to fatalities in factories has more than doubled in the 20 years to 1971 indicating a progressive lowering of the severity threshold and an increasing tendency for workers to take time off for minor injuries. There is ample evidence, from studies undertaken in many countries, to back up the assertion that the success of preventive strategies, whether regulatory or otherwise is more evident in the reduction of serious injuries and fatalities than the more run-of-the-mill accidents. See Senneck's Figure 1. Senneck then:

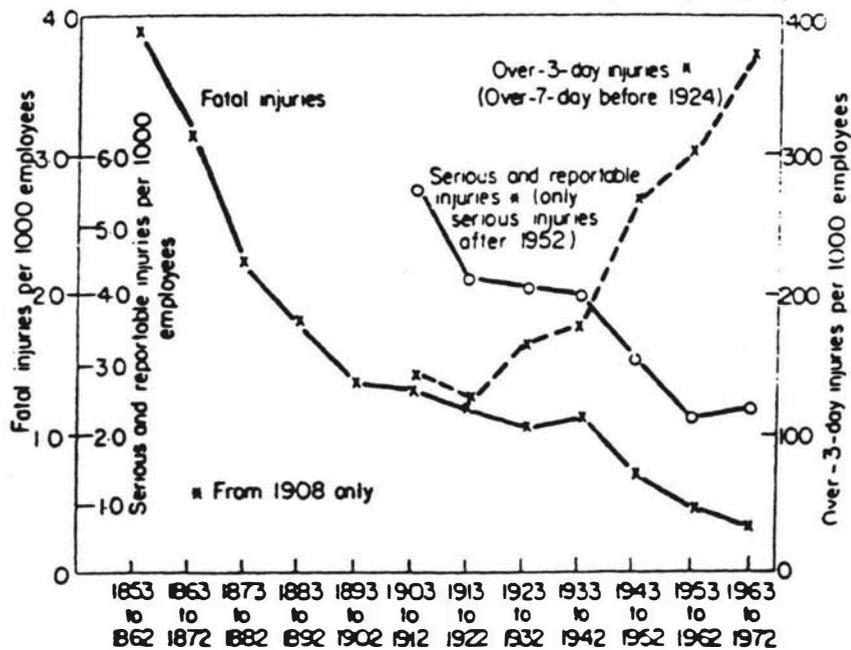
... concluded that the over-3-day injury rate is a poor measure of safety performance; that measures of safety performance based solely on the incidence of severe injuries are likely to lead to the neglect of preventive measures for certain types of injury and certain types of accident; and that knowledge about the circumstances of accidents that result in minor injuries (including those that do not cause more than three days' absence) is needed to provide a sound basis for improving safety within the undertaking.²³

Not surprisingly others have also recognised the need for some other measure of safety performance but at the same time it must also be admitted that it would be very difficult to derive any measure of health performance because of the many difficulties in arriving at the true incidence of work-related illnesses or any other measure of the success in the controlling of the work environment. A publication of the British Health and Safety Executive points out that measures like the accident frequency rate are not reliable guides to safety performance. The report found "no clear correlation between such

21 Hopkins, A & Parnell, N, Why Coal Mine Safety Regulations in Australia are not Enforced. (1984) 12 *International Journal of Sociology and the Law*, 179-194, 193.

22 Senneck, C R, Over 3-day Absences and Safety, (1975) 6 *Applied Ergonomics* 147-153, 150.

23 Senneck (1975) 153.



Injury rates per 1000 employees in British mines, 1853–1971

Figure 1

Source Senneck

measurements and the work conditions, the injury potential or the severity of injuries that have occurred." A need for "a more accurate measurement ... to help ... control reasonably foreseeable risks" was seen. Systematic inspection and auditing of physical safeguards, systems of work, rules and procedures and training methods were recommended rather than accident experience alone.²⁴

Such methods, if designed with health hazards in view, could probably also better measure occupational health performance in view of the considerable time that may elapse between exposure to a contaminant and the onset of any disease. Auditing of procedures and systems can be so designed as to highlight inadequacies in the transport, storage and use of hazardous materials, their monitoring or other necessary forms of control.

8.5 DIFFICULTIES OF REGULATION

The other vital factor is that there are many unsafe situations and acts that do not lend themselves to regulation because of their very nature. Again breaches of regulations may often be of a momentary nature and thus are not easily detectable or remedied other than by competent management with an alert, stable and well-trained workforce.

²⁴ *Success and Failure in Accident Prevention*, (1975) London: HMSO, 3.

At the same Adelaide conference that Wigglesworth spoke, Creighton examined the Victorian legislation which, like much recent legislation in both Australia and Canada, owes much to the influence of the Robens Report. After referring to the principal changes introduced by the new legislation he comments:

In some respects there is nothing particularly revolutionary about these proposals. They really constitute no more than an attempt to make the process of standard-setting and enforcement efficient, and more responsive to the circumstances of the late 20th century. On the other hand, if they attained their stated objectives, then their impact would indeed be 'revolutionary.' It must be recognised that in real terms the traditional system consisted not of standard-setting and enforcement, but rather the pretence of standard-setting and enforcement. If that pretence became a reality, then the change would be truly dramatic. It would inevitably have important implications for the liabilities and responsibilities of employers, workers, unions, administrators and Governments.²⁵

It is important to add that in addition to the passing of new legislation the Victorian State Department of Employment and Industrial Affairs has been completely reorganised and staff training stepped up. This has taken place alongside the setting up of the Occupational Health and Safety Commission; a tripartite body on which persons with special expertise in the field have also been appointed. A problem remains with the regionalisation of the Department as the local departmental head may be neither involved nor particularly interested in occupational health and safety.²⁶ Some New Zealand officials maintain that the position is similar in New Zealand. Admittedly the Department of Labour has stepped up its training activities and staff are being encouraged to qualify for the Diploma in Occupational Safety and Health at Massey University. It must be added that the increase in training followed the Department benefiting from substantial funds collected with ACC's levy on employers.

8.6 FURTHER OVERSEAS CONTRASTS

In an interesting study between Sweden and the United States, Kelman makes the following comment:

²⁵ Creighton, W B, *Legal Obligations*, (1986) International Conference, Adelaide, Mimeo, 3.1.2.

²⁶ Quinlan, M (1991) personal communication.

Differences in the enforcement systems in the two countries influence both the inspectors and the tenor of their inspections. American inspections are designed more as formal searches for violations of regulations; Swedish inspections are designed as informal, personal missions to give advice and information, establish friendship ties between inspector and inspected, and promote local labor-management co-operation.²⁷

Despite the generally accepted differences between "socialist" Sweden and "capitalist" United States, Kelman does not mention any firm conclusions about the effectiveness of the respective systems.

After considering the British and American systems Wilson (1985) makes a number of comments:

... those charged with the enforcement of occupational safety and health in Britain aim at being persuasive and friendly rather than conflictual and coercive. ... British factory inspectors not only have more cultural legitimation than that (sic) American counterparts; they also have stronger legal powers, though these stop short of being able to impose fines. The OSHA inspector may be forced to obtain a warrant to enter business premises ...²⁸

Wilson then mentions that American critics of regulation are envious of the British system with its more relaxed style, lack of bureaucracy and litigation. He then asks:

... these generally conservative admirers of the British system would be fully prepared to accept the legal and cultural powers which the British system provides for inspectors. It is at least part because their status is so secure that British inspectors are less officious.²⁹

In 1973 a National Commission on State Workers' Compensation Laws reported to the President and Congress of the United States. Subsequently three volumes of supplemental studies were issued. In one such study -- *An Empirical Analysis of Safety Legislation* -- Chelius after examining:

... the cross sectional relationship between alternative measures of the injury rate and variables designed to measure the attributes of safety regulation and the non-governmental characteristics of establishments with 100 or more employees in 14 states.³⁰

concluded:

... there is little evidence that these regulatory attributes have had a beneficial impact on the injury rates.³¹

27 Kelman, S, *Regulating America, Regulating Sweden*, (1981) Cambridge MA: MIT Press, 203.

28 Wilson (1985) 140.

29 Wilson (1985) 141.

30 Chelius, J R, *An Empirical Analysis of Safety Regulation, Supplemental Studies for the National Conference on State Workmen's Compensation Laws*, III, (1973) Washington DC: USGPO, 64.

31 Chelius (1973) 64.

This research was undertaken before the advent of OSHA.

Doniger made a lengthy examination of the difficulties of regulating vinyl chloride in the United States after the B F Goodrich deaths had been much publicised. He considers "[h]ealth and environmental groups, unions and other advocates of effective and efficient regulation have an important role to play" and "must publicly emphasise the reasons for cooperative measures" applying persuasive political pressure.³² He concludes:

The vinyl chloride episode is only a forerunner of problems that will be encountered hundreds of times in the implementation of toxic substances control laws in the coming decade.³³

In the absence of any corresponding research in New Zealand, the relevance of overseas studies remains an unknown quantity. Admittedly it would be no light task to determine their applicability but one could be excused for concluding that, in the past, too much attention has been paid to anecdotal evidence from vested interests. That being the case it is regrettable that many changes are presently under way without the benefit of applied research and being driven solely by administrative, ideological and fiscal considerations.

8.7 THE RELEVANCE TO NEW ZEALAND

Many of the conclusions outlined above are relevant to the New Zealand scene. Having closely observed the lobbying activities of contending parties over the years with respect to Workers' Compensation, Accident Compensation as well as to occupational health and safety, it is my very distinct impression that employer interests have been usually, though not always, more successful in persuading successive governments to their point of view, than have the unions. Employer groups are generally much better resourced and thus better able to present and argue their case.

Though each country's legislation has developed against the background of its own social, political and industrial climate and thus, in detail at least, is not transferable, there are broad principles that can be deduced and applied. Here, of course, we can remind ourselves of the common thread previously running through the legislation and its enforcement in Britain, Canada, Australia and New Zealand. Today New Zealand stands somewhat apart. While many of the studies that have been made are more

³² Doniger, D D, *Federal Regulation of Vinyl Chloride: A Short Course in the Law and Policy of Toxic Substances Control*, (1978) 7 *Ecology Law Quarterly*, 500-677, 676.

³³ Doniger (1978) 677.

than a little disappointing to say the least, the fact that many critical eyes have been turned on the various systems is, in itself, more than a little encouraging. What are the encouraging signs that can be gleaned?

Of prime importance would be the presence of an authority which has the confidence of both management and labour by reason of its adequate resources and professionalism. This is important not only at the policy and rule-making level but with the staff in the field who are in daily contact with industry. It is also true that complex regulations can be self-defeating.

Considering the importance that has been placed on regulation over the years and the cost of the regulatory authorities, a sound case can be made for government to fund a comprehensive research project in an endeavour to establish the efficacy of the present regulatory approach and to identify improvements and changes that could be made. Such a project would need to include an examination of the back-up that regulation can receive from self-regulation and the relationship between the two approaches with emphasis on the success of their complementary nature; the latter point being less well appreciated.

CHAPTER 9

PARTICIPATION IN THE WORKPLACE

9.1 THE INTERNAL RESPONSIBILITY SYSTEM

Having looked at the nature and effectiveness of regulation, there is then that more recent development the advocacy of greater self-regulation which was a cornerstone of the Robens Report wherein the call is for "a more effectively self-regulating system."¹ In Canada another report put it a little differently recommending an improved "internal responsibility system" (IRS).² While some see the concept as a call for "worker participation," however, much more is involved. The internal responsibility system may, perhaps, be more appropriately styled as the "participative approach" for clearly it is all-embracing, envisaging co-operation among all in the workforce from senior management to the newest recruit. Certainly both terms are preferable to "self-regulation;" a term which has been subject to considerable criticism. In recent years increasing endeavours have been made to harness the knowledge, experience and co-operation of the rank and file workers. This call has received widespread approval and even implementation in many countries. Such involvement can take a number of forms, the most common of which are the appointment of workers' health and safety representatives or membership of a joint management-labour health and safety committee. However there are many other ways in which the workforce can be profitably involved in the interests of better occupational health and safety performance. Those who are closest to the hazards of the cutting edge of an undertaking are often in the best possible position to assess many of the hazards faced. Furthermore they are frequently in a position to suggest sound practical solutions to many problems. This can be encouraged if there is good communication within the organisation and management is responsive to suggestions and requests from the rank and file and, at the same time, keeps them informed while providing good instruction and training.

1 Committee on Safety and Health at Work, *Safety and Health at Work: Report of the Committee*, 1972) Cmnd 5072, London: HMSO, 7, (The Robens Report) 12.

2 *Report of the Royal Commission on the Health and Safety of Workers in Mines*, (The Ham Report) (1976) Toronto: Ministry of the Attorney General.

In Canada, where considerable emphasis has been laid on committees, worker involvement has proceeded against a background of three important principles. They are:

- * A worker's right to know the hazards faced;
- * A worker's right to participate in the determination of health and safety measures; and
- * A worker's right to refuse to undertake work where there is reasonable justification for so doing on the grounds of health and safety.

Joint management-labour health and safety committees have had a chequered history, being frequently viewed with apprehension by management and with cynical suspicion by labour. In the past far too many committees have been established with no or inadequate terms of reference in an atmosphere which is more adversarial than one of compromise and co-operation. Training of committee members, both management and labour, has been conspicuous by its absence, yet it is accepted by those with considerable experience in the field that adequate training is essential, along with complete access to all technical details of the hazards faced. Despite this unpromising state of affairs, recent legislation in many countries calls for the establishment of joint committees and the appointment of workers' health and safety representatives and frequently this has become mandatory within prescribed limits.

In an ILO report the following interesting comment appears after referring to the appointment of both joint committees and workers' health and safety delegates:

It appears nevertheless that, as a general rule, the system of workers' safety delegates is regarded as the more efficient, especially where they enjoy wider rights. Such delegates are in a position to follow on the spot and continuously the flow of operations whereas members of safety committees visit workplaces only from time to time and, as a rule, play only an advisory role.³

In New Zealand the Labour Department has issued a voluntary Code of Practice for Health and Safety Representatives and Health and Safety Committees.⁴ The code did not get off to an auspicious start with "the Employers' Federation, unhappy about powers given to health safety representatives to halt work considered unsafe and to call in outside consultants ..."⁵ As Mullen later commented "[t]here

³ *Safety and Health and the Working Environment* Report VII(a)(1) (1980) Geneva: ILO 19.

⁴ Department of Labour, *Code of Practice for Health and Safety Representatives and Health and Safety Committees*, (1987) Wellington Department of Labour.

⁵ *Evening Post*, 23 June 1987, 14.

can be little doubt that the attempts to tackle occupational health and safety by voluntary means has only had very limited success in New Zealand."⁶ It is interesting to note that while the code provides for the training of representatives it is silent on the training of committee members.

How then are these committees and workers' health and safety representatives performing elsewhere bearing in mind that the responsibilities and powers of representatives and committees may differ from country to country and even from state to state in some countries. In Australia, for example, outside of New South Wales committees are given a standard-setting role while representatives are there primarily to protect workers' rights through monitoring and [some] enforcement even though in some cases representatives may serve on committees.⁷ Responses to such a question would vary widely but certainly when, properly structured, adequately trained, supported and given access to essential information on the hazards with which they have to contend, they can perform a most useful function.

9.2 THE EVALUATION OF THE PARTICIPATIVE APPROACH

In Ontario following on the Ham Report, considerable emphasis has been on encouraging greater use of the internal responsibility system (IRS). Dr Ham's views are summarised in his final paragraph:

The acceptable levels of risks at work and in life-style are being redefined by society. It is essential that this process be marked by a higher measure of openness than has hitherto characterised government and industrial policy. Openness, contributive participation by workers, and thorough accountability can re-establish the self-regulatory character of the internal responsibility-system at the company level as the key to the control of risks at work in a technologically complex future. The regulatory and auditing functions of the Occupational Health and Safety Authority should be designed to keep the internal system at company level alert and responsive and to deal bluntly with the true offender.

The Commission believes that the objective of a sound balance between self-regulation and legal compulsion based on the constructive co-operation of all parties cannot be achieved within current government policy and traditional practices. It has formulated its recommendations to promote the change it considers necessary for the future well being of the workers in the mines and plant.⁸

⁶ Mullen, E A, *Voluntarism in occupational health and safety: the New Zealand response*, (1990) 15 *NZ Journal of Industrial Relations*, 128-143, 143.

⁷ Quinlan, M, (1991) Personal communication.

⁸ The Ham Report (1976) 258.

A Royal Commission examining matters of health and safety arising from the use of asbestos in Ontario, devoted some time to this issue and received many submissions on the subject. Their concern was motivated as the IRS "provides the foundation for Ontario's strategy to protect workers from asbestos exposure."⁹ As their views were formed after an exhaustive examination of considerable evidence, their conclusions can be given considerable weight. The Report continues:

Organized labour has been especially critical of the IRS and made its views clear to us in its written and oral submissions. Labour feels that the concept is deceptive in that it has an appearance of protecting workers, while in practice it provides both management and the government with an excuse for doing as little as possible. Specifically, labour is critical that the committees may appear to give workers an involvement in health and safety while denying them the power actually to accomplish anything. Labour is also concerned that the Ministry uses the IRS to avoid the necessity of action. Labour claims that Ministry officials respond to problems in the workplace by telling the two sides – management and labour – to work difficulties out together. Labour claims that the powerlessness of workers in a "work it out yourselves" situation results in what is, in effect, collusive inaction between management and the government... The joint committee is the specific forum that brings management and labour together. The long-term success of the IRS depends on the successful operation of the joint committee. Spokesmen involved with such committees report the need for patience, commitment and time.¹⁰

Obviously the Commission did not view the reliance in the IRS misplaced but, lacking commitment by all parties, it will be.

In one of a number of studies commissioned for that Commission Gunderson and Swinton, when making an assessment of the efficacy of joint committees, comment:

First, it appears that joint committees will work better in organized than non-unionized workplaces. Even if OFL [Ontario Federation of Labour] training is available to non-union workers, they are lacking in a general support system to assist them in establishing a committee and providing resources to deal with problems as they arise. This is particularly true with regard to recognition of health hazards and responses to them. The employees may often be in marginal companies, where pressure on health and safety issues may be perceived as a threat to employment security.

⁹ *Report of the Royal Commission on Matters of Safety and Health Arising from the Use of Asbestos in Ontario*, (1984) Toronto: Ministry of the Attorney General, 521.

¹⁰ Asbestos Commission (1984) 522.

Secondly, the committee's input may be more problematic with regard to health issues than with safety issues. Information problems are severe, for it may be difficult for workers to acquire information on chemicals or other toxic substances in their work environment, particularly if a trade name is used. Certainly the Ministry of Labour study on voluntary committees found that "health issues are conspicuous by their near absence, particularly in those industries with recognized health problems."¹¹

After suggesting that, even accepting some of the shortcomings outlined they comment that "the joint committee is, however, an improvement on the situation with no joint committees." And later:

Where management is co-operative with the joint committee, the joint committee can have a valuable input into control of health hazards. This may take the form of designing education programs, discussing new safety rules and communicating them to workers, or working with management on the phasing out of the hazard.¹²

Another evaluation of the Canadian experience was undertaken by Parsons who researched the position in several provinces. Parsons points out that the failure of voluntarism "was part of the rationale for mandating committees in most provinces."¹³ He sees it essential that there still be strong government enforcement and backing from the unions encouraging Ham's call for "contributive responsibility." He concludes:

... the committees must be given direct responsibility. In simplest terms this means, the committee must have the authority to control the design and performance of work to the extent that health and safety is an issue coupled with the needed budgetary authority to implement its decisions. This may not be needed where the government is willing and able to enforce committee decisions. Without such responsibility, the committee decisions will be frustrated when governments or government policies become less pro-worker.¹⁴

11 Gunderson, M & Swinton, K, *Collective Bargaining and Asbestos Dangers at the Workplace*, (1981) Toronto: The Royal Commission on Matters of Health and Safety Arising from the Use of Asbestos in Ontario, 8.21.

12 Gunderson & Swinton (1981) 8.22.

13 Parsons, M D, *Worker Participation in Occupational Health and Safety: Lessons from the Canadian Experience*, (1988) 13 *Labor Studies Journal*, 22-32, 31.

14 Parsons (1988) 32.

At that time the complaint in Ontario was that there was not sufficient backing by the inspectorate for the internal responsibility system.¹⁵ This arose from the Ontario Government view that the whole process of the internal responsibility system and establishment of committees "as the first step in replacing government regulation with self-regulation."¹⁶

In another Canadian study of the effectiveness of joint management-labour health and safety committees, Sentes comes to similar conclusions.¹⁷ Sentes acknowledges that it is difficult to determine whether improvements can be attributed to the introduction of health and safety committees. He also mentions that in the United States studies have identified substantial reductions in accident rates following the introduction of new technology. In New Zealand back injuries were virtually eliminated some years ago at the Chelsea Sugar Refinery following the introduction of mechanised handling. However, in some Canadian companies, reductions in frequency rates can be linked to health and safety committees.¹⁸ Whether or not a committee has any decision-making power, it cannot be denied that if a committee's recommendations are being consistently ignored that will be a certain recipe for failure.

Finally Sentes after observing that "some dissension is inevitable among three groups with differing needs and concerns" commented:

Employers in both the private and public sectors might do well to ponder the advice of Allan Flanders, a British industrial relations expert, who believes that "If employers want to retain power, they have to learn to share it." ... Without such changes, organized labour may well turn towards the adversarial process of collective bargaining to achieve its health and safety objectives.¹⁹

The latter comment is reminiscent of that of Gunningham who, when referring to the Australian scene, stated:

Given the conflict between rigorous safety legislation and employer self-interest, the power of the industrial lobby, and the reluctance of governments to take action ... radical reform is inconceivable in the absence of forceful and sustained pressure from the trade union movement.²⁰

15 Parsons (1988) 27.

16 Parsons (1988) 26.

17 Sentes, R Balancing the Act (1985) 1 *Occupational Health and Safety Canada*, 15-19, 65.

18 Sentes (1985) 17.

19 Sentes (1985) 65.

20 Gunningham, N, *Safeguarding the Worker*, (1984) Sydney: Law Book Co Ltd, 368.

He then went on to warn that the mere enactment of new legislation is not enough. The political will to enforce it and the vigilance of the trade unions would be vital. He envisages:

... occupational health and safety legislation ... entering a new phase characterised by greater state intervention, more rigorous enforcement, and more direct and effective worker participation in conjunction with the provision of statutory worker's rights.²¹

In New Zealand at the present time most would view such a comment as being very optimistic.

9.3 THE PARTICIPATIVE APPROACH AND OTHER INFLUENCES

Article 5 of ILO *Convention 155*, concerning occupational health and safety and the working environment, could be regarded as setting the desired standard for training to achieve "adequate levels of safety and health," and "communication and co-operation at the levels of the working group and the undertaking and at all other appropriate levels up to and including the national level." It is regrettable that its influence is not attracting more attention in New Zealand thus setting the scene for a more structured participative approach. There was no mention of a move to a more participative approach, save in an indirect way, in the Minister of Labour's ten points recently circulated in a discussion document.²²

While today, there is an increasing demand from organized labour for more health and safety training and for some of that training to be under the union's control, nevertheless it is highly desirable, that for the joint management-labour committees, training be given to all members together. Unfortunately the evaluation of any new countermeasure can be frequently confounded by the fact that more than one new strategy has been adopted in the same period.

9.4 RECENT POLITICAL CO-OPERATION IN ONTARIO

It is interesting to consider the latest move in Ontario, the 1990 Amendment to the Occupational Health and Safety Act and the rationale for its implementation. As a former official of the Ontario Ministry of Labour explained a "political concord between the caucuses of the Liberal and New Democratic Party had included a commitment to improving health and safety."²³ Shulman continues:

21 Gunningham (1984) 372.

22 Birch (1991).

23 Shulman, N, *The Long Winding Road*, (1991) 38 (1) *Accident Prevention*, 9-10, 9.

A critical piece of advice was received during this process: to make real improvements, the main stake holders, employers and employees, must be involved in a meaningful way. ... The key to effective involvement, however, is that the participants must be knowledgeable about health and safety. This calls for good training.²⁴

To promote greater participation the requirement for joint committees was extended and existing exemptions abolished increasing the number of workplaces requiring committees from 20,000 to about 50,000. Workplaces with fewer than 5 workers are exempt. Greater training was called for and at least one employer and one employee member on each committee must meet the training standard required. These training standards will be set by the newly created Workplace Health and Safety Agency which has been established by the Act. The Agency along with the Workers' Compensation Board and the Ministry of Labour is responsible to the Minister of Labour. In addition to employer and employee members, the Agency also has four health and safety professionals on its Board. The principal objective of the new Act is to give the internal responsibility system set in place by the original 1978 legislation, a much needed boost.

9.5 BRITISH EXPERIENCE WITH THE PARTICIPATORY APPROACH

After considering the above views from Canada and Australia, an examination of the effectiveness of the British *Safety Representatives and Safety Committees Regulations* (SRSCR) in the printing industry is of more than passing interest. After referring to the favourable political conditions in which those regulations were drawn up and instituted, legitimising the trade union role and its presence in the workplace, Walters comments:

However, the corporatist alliance of the mid-1970s soon gave way to quite a different political philosophy and policy towards improving industrial relations. This has led to a deliberate erosion of trade union power and presence in the workplace. Consequently although the HSW [Health and Safety at Work Etc] Act and the SRSC [Safety Representatives and Safety Committees] Regulations remain on the statute book, their impact is minimised by the erosion of the foundations of trade union workplace power which was originally intended to provide them with support and strengthen their effectiveness.²⁵

This would seem clearly to emphasise the need for well-informed and active union backing for such forms of worker participation.

²⁴ Shulman (1991) 9.

²⁵ Waters, D, Health and Safety and Trade Union Workplace Organisation: A Case Study in the Printing Industry (1987) 18 *Industrial Relations Journal*, 40-9, 48.

In another examination of the involvement of workers in the British workplace Barrett and Howells regret:

... that the Safety Representatives and Safety Committees Regulations, which are made in the UK climate of management worker "conflict" in industrial relations, have not given workers greater involvement in the future planning of their working environment.²⁶

When there is a down-turn in the economy, however, the whole scene can well change. As Glendon and Booth comment after referring to the decline in trade union stimulus in Britain:

Since about 1979, however, there has been a decline in such activity. Increasing worker expectations regarding health and safety generated since the mid-1970s are now coming into conflict with the effects of the economic recession, which operate to reduce expenditure on health and safety and concomitantly increase redundancy fears and channel trade union activity more towards job preservation. Despite increasing worker concern about the work environment, trade unions have greater difficulty in pressing health and safety demands in an adverse economic climate. ... There is still only limited backing for safety representatives from the trade unions at industry and national level, and there are some signs of a shift towards hazard-oriented national campaigns by trade unions.²⁷

Tombs also emphasises the effect of the changes both economically and politically:

... following the demise of a particular form of social democracy and the break-up of corporatist style arrangements at the turn of the decade, this system of self-regulation has been in decline.²⁸

and later:

The regulatory agencies have thus become less capable of performing a role which is afforded less legitimacy.²⁹

26 Barrett, B & Howells, R, *Health and Safety at the Workplace: The Involvement of Workpeople* (1988) International Conference on Ergonomics, Occupational Health & Safety, Beijing, China, mimeo, 779.

27 Glendon, A I & Booth R T, Worker Participation in Occupational Health and Safety in Britain (1982) 121 *International Labour Review* 399-416, 412.

28 Tombs, S, Industrial Injuries in British Manufacturing Industry, (1990) 38 *The Sociological Review*, 324-343, 340.

29 Tombs (1990) 340.

Barrett and Howells also comment on the difference between areas of Britain where there is full employment and those in recession for there "managers and workers seemed to have little time for communication on safety issues and little opportunity to attend to hazards."³⁰ In like manner Barrett and James, after alluding to the decline of the manufacturing sector, the growth of the service sector and smaller units, new types of employment, decline of unionization, tolerance of lower working standards, etc, comment:

The more hostile economic climate of the 1980s and the changing employment practices occurring against this background, have thus served to undermine crucial assumptions within the philosophy of self-regulation: assumptions about employer and employee responsibilities, attitudes and influence. At the same time economic and labour market forces have imposed much greater burdens on the resources of the Health and Safety Executive, and its Factory Inspectorate, in a period when both bodies have been suffering staff cuts and the Inspectorate has acquired regulatory responsibilities in a number of new areas.³¹

In the difficult economic times being faced in New Zealand today, similar reactions could be expected from management, labour and the unions. However one could be justified in considering whether such adverse effects will be multiplied by the Employment Contracts Act 1991. This on the presumption that the numbers of workers who will continue to have the backing of a union, let alone a strong well-resourced one, could diminish substantially. Now too, unions no longer have a right of entry to their members' workplaces.

These views from Britain are especially important in view of the stress being placed on self-regulation in that country. where Dawson *et al* have made an exhaustive examination of self-regulation.³² They emphasize that while much attention can be given to the overall national structure with its inevitable political overlay, it is at the local level and in the individual workplaces where the real issues lie. They suggest that:

... questions of willingness aside, there are circumstances in which the capacity of management (and of unions if they are recognised) to sustain an effective health and safety policy through self regulation may be severely limited ... being related to the degree of unionization, size of firm and extent of subcontracting ...³³

30 Barrett & Howells (1988) 774.

31 Barrett, B & James, P, Safe Systems: Past, Present -- and Future? (1988) 17 *Industrial Law Journal*, 26-40, 40.

32 Dawson, S, Willman, P, Clinton, A & Bamford, M, *Safety at Work: the Limits of Self-regulation*, (1988) Cambridge: Cambridge UP.

33 Dawson *et al* (1988) 179.

Later, "where endorsement of good intent is lacking, the role of inspection and enforcement becomes important," they recommended that in every public and private organisation, a senior executive officer be deputed:

... to establish and oversee management accountability for occupational health and safety performance;
to establish and oversee the vetting the performance of prospective contractors and to follow up after a contract has been let.³⁴

A number of other recommendations relate to improving the profile and performance of the inspectorate. It was also suggested that both the Confederation of British Industry and the trade unions could expand their information and policy activities.

9.6 THE RIGHT TO REFUSE HAZARDOUS WORK

ILO Article 13 of *Convention 155* also provides that:

A worker who has removed himself from a work situation which he has reasonable justification to believe presents an imminent and serious danger to his life or health shall be protected from undue consequences in accordance with national conditions and practice.

Probably one of the more controversial aspects of such legislation is the presence or absence of any provision specifically enabling an individual worker to refuse to undertake any work that the worker may regard as unsafe or a danger to health. This, despite the fact that such a right exists at common law and indeed in accordance with Article 13 quoted above.³⁵ While a failure to obey such an order would not be a breach of the contract of employment, nevertheless workers in such a predicament, require a degree of protection that the common law does not provide. As Gunningham comments:

An important practical difficulty in refusing to obey instructions or in walking out is that the employer may respond by dismissing the employee. Although a court at common law may find the dismissal to have been wrongful, it has no general power to order the employee's reinstatement, and in practice the employee's only remedy will be to claim damages for wrongful dismissal.³⁶

³⁴ Dawson *et al* (1988) 279.

³⁵ *The Ottoman Bank v Chakarian* [1030] AC 277.

³⁶ Gunningham (1984) 243.

Unlike its counterparts in many countries the New Zealand health and safety legislation does not specifically protect an employee from reprisals if there is a refusal to undertake work that is deemed to be unsafe either to the worker him or herself or to a fellow worker. While employers are generally very wary of such provisions, nevertheless the benefits far outweigh any disadvantages. At the same time it is appropriate to record that the Employment Contracts Act 1991 repealed the Labour Relations Act 1987. Section 237 of that Act provided that a strike or lockout would not be unlawful if the workers who struck have, or the employer who locked them out had, reasonable grounds for believing that the strike or lockout is justified on the grounds of safety or health.

Section 124 of the Australian Industrial Relations Act 1988 empowers the Australian Industrial Relations Commission to deal with a claim for lost wages from workers striking on health or safety issues provided there were reasonable grounds for their stoppage. The protection that the Canadian legislation affords workers who refuse to undertake work that they consider to be unsafe varies from province to province. The Ontario Occupational Health and Safety Act 1978 (s. 24(1)) for example protects an employee against any reprisal by an employer if:

... the worker has acted in compliance with this Act or the regulations or an order made thereunder or has sought the enforcement of this Act or the regulations.

There is already ample evidence from Canada that where such a right is given to workers it is rarely abused and the benefits far outweigh any disadvantage.^{37,38} It is also important to emphasise that even where a worker's refusal is not subsequently upheld that does not necessarily indicate that the right has been abused.

There is some protection for workers under the provisions of s 61 (1)(d) of the Factories and Commercial Premises Act 1981 in certain circumstances. These include seeking a benefit under the Act, giving information about an offence to an inspector or giving evidence in proceedings. If an employer dismisses, suspends or alters his terms of employment he is guilty of an offence under the Act.

9.7 THE RIGHT TO KNOW

Following reference to the ineffectual nature of most efforts to regulate occupational health and safety, a note in the *Yale Law Journal* comments:

37 Brown, R The Right to Refuse Unsafe Work (1984) 17 *University of British Columbia Law Review*, 1-34.

38 Manga, P, Broyles, R. & Reschenthaler, S. *Occupational health and safety issues and alternatives*. Technical Report No 6 (1981) Ottawa: Economic Council of Canada, 261.

A major obstacle to effective reduction of workplace health risks is the lack of information provided to those who are at risk. Currently statutory and regulatory approaches have not dealt adequately with this information problem. Equitable enforcement of the employer's common law duty to warn employees will help to remedy this inadequacy, but legislation requiring standardized disclosure is needed to support fully the rights of a workers to protect their own health. Great potential remains for effective self-regulation by an informed workplace population. As OSHA has recognized, '[s]ound public policy dictates that workers be afforded a central role in the direction and solution of health problems, as there are no assurances that anyone will protect their health with equal vigor and determination.'³⁹

In recent years there has been considerable discussion on this issue and substantial progress has been made. One of the more difficult problems encountered in Canada and the United States, was the conflict between the "worker's right to know" and industry's right to protect valid trade secrets. The matter was resolved in Canada when:

[a]fter considerable debate, it was finally agreed that, without full disclosure, it would be difficult for workers and their representatives to understand the nature and extent of the risks involved in using hazardous materials in the workplace. The issue was resolved when the government representatives agreed to establish a mechanism to validate trade secret claims independently and to verify that the safety and health information provided to protect workers covered all the risks associated with the hazardous ingredients of chemical mixtures.⁴⁰

After discussing the alternative forms that government intervention may take, Mendeloff comments:

One strategy favoured by economists did find support in the OSH Act – the provision of more information to workers. Better information can improve the workings of the market for safety, and the preferences of informed workers merit more respect than those of uninformed workers. As workers learn about new hazards, they are likely to demand either risk premiums or elimination of the hazards. In either case, employers' incentives to provide safe workplaces will grow. The inclusion of provisions to keep workers informed resulted,

³⁹ Note: Occupational Health Risks and the Worker's Right to Know, (1981) 90 *Yale Law Journal*, 1792-1810, 1809.

⁴⁰ McLellan, J W, Hazardous Substances and the Right to Know in Canada, (1989) 128 *International Labour Review* 639-650, 642.

however, not from pressure from economists but primarily from the efforts of Nader's staff, whose skepticism toward both unions and government bureaucrats led it to favour strengthening workers' capabilities to protect themselves.⁵

In the United States, though considerable controversy has centred around the problem of confidentiality of trade secrets, the most recent legislation has provisions requiring trade secrets to be disclosed to health care personnel in appropriate circumstances. For example, under the heading of trade secrets, the United States OSHA Hazard Communication Standard 1910.1200 allows the chemical manufacturer, importer or employer to withhold the specific chemical identity, including the chemical name and other specific identification of a hazardous material from the material safety data sheet required by the standard. This is provisional on:

- 1 The claim that the information withheld is a trade secret can be supported.
- 2 Information contained in the material safety data sheet concerning the properties and effects of the hazardous chemical is disclosed.
- 3 The material safety data sheet indicates that the specific chemical identity is being withheld as a trade secret.
- 4 The specific chemical identity is made available to health professionals, employees, and designated representatives, in accordance with the applicable provisions of this paragraph.

The standard then goes on to provide for the immediate disclosure of such information to a health professional in an emergency situation and procedure is also laid down for disclosure in a non-emergency situation.

Clearly if there is a reluctance to disclose data essential for a proper evaluation of risk or to establish safe handling procedures by foreign manufacturers then New Zealand workers could also be at risk. Schroeder and Shapiro comment that "numerous instances of employer 'cover-ups' of research revealing adverse health effects have been reported," giving details in a footnote.⁶ Refer also to #4.10. The same authors cite a report that the Manufacturing Chemists Association suppressed data on vinyl chloride as well as other instances of suppression of information about health hazards.⁷ If workers are to

⁵ Mendeloff, J. *Regulating Safety: An Economic and Political Analysis of Occupational Health and Safety Policy* (1979) Cambridge MA: MIT Press, 25.

⁶ Schroeder, E P, & Shapiro, S A, Responses to Occupational Disease: The Role of Markets, Regulation and Information, (1983-84) 72 *Georgetown Law Journal*, 1231-1308, 1237.

⁷ Schroeder & Shapiro (1983-84) 1238.

pay their full part in ensuring a safer and healthier workplace then clearly they must be fully informed on all aspects of every hazard in the workplace.

In view of the directions events are taking overseas, it is more than a little disappointing to see how atavistically a conservative but influential group of New Zealand management views the possibility of disclosure rules. Surprisingly the New Zealand Business Roundtable argue that;

While there may be some case for legislation setting out the basic rights of workers with regard to health and safety issues, the optimal legislation need not involve disclosure rules. Because information disclosure is not always feasible or desirable, it is possible that this role may be more appropriately played by clarifying employers' duty of care, or by introducing some form of negligence tort, with information disclosure being taken into account in determining responsibility/negligence.⁸

This view could be contrasted with that of the American economists previously referred to by Mendeloff on p 156, who favour the provision of more information to workers.

It seems reasonably clear that where vital information is withheld on the grounds of trade secrecy, a greater duty lies on the shoulders of the employer to ensure that all possible steps are taken to safeguard the health, safety and welfare of the employees. It would seem that the NZ Business Roundtable would agree with this comment as they make reference to this view elsewhere.⁹

Considering the emphasis that the Roundtable place on enterprise bargaining providing a better base to develop greater efficiency, productivity and industrial harmony, one would have assumed that a well-informed workforce would have been essential to its success. Clearly their motives for opposing information disclosure warrant close examination. Surely equity in such negotiations can only begin to exist if there is today's much lauded arena; the level playing field even without any mention of a neutral referee. The cost of information is also mentioned and the Roundtable even go on to suggest that research in this area be commissioned by workers as well as employers. Then there follows a claim that there is evidence (from the United States) that government agencies consistently over estimate risks.

However, there is other contradictory evidence which would call into question the Roundtable contention, and which is also from the United States. Epstein comments:

⁸ *Regulating Occupational Safety and Health*, (1988) Wellington: New Zealand Business Roundtable, 17.

⁹ *Regulating for Occupational Health and Safety* (1988) p 16, referring to Campbell (1987) 93.

Industry has manipulated economic as well as scientific data. It is now common practice for any industry when "threatened" by an impending regulation or standard designed to protect against occupational cancer, environmental pollution, or some other adverse effect, to protest that this measure is unnecessary and so expensive that it will put the industry out of business.¹⁰

This is in line with comments quoted in #4.10.

The Business Roundtable arguments are hardly likely to appeal to workers and unions for they see a need for strong pro-active measures not after the event legal arguments. The 80,000 victims of asbestos exposure in the United States currently awaiting settlement of their law suits against their former employers or suppliers of asbestos would surely agree.¹¹ Comments made in #13.4 *et seq* concerning threshold limit values are also relevant.

9.8 THE PRACTICAL EFFECT OF RIGHT TO KNOW LEGISLATION

As Jasanoff emphasises, knowledge to be meaningful has to be associated with power to prevent; in other words to be able to participate in the initial decisions on technological changes and the implementation of new systems as well as their management.¹²

The efficacy of any "right to know" regulations will depend in considerable measure on the ability of all in the workplace to interpret the information, instructions and other data promulgated in compliance with the regulatory requirements. Instructions are not always written with the knowledge and ability of the users in mind. Even small print can be a bedeviling feature of the instructions on too many containers. It is not enough to give workers the materials and point out the instructions. It is essential that not only should adequate instruction be given but the instructor must be satisfied that those receiving the directions thoroughly understand those instructions.

9.9 WORKER PARTICIPATION AND MANAGEMENT'S RESPONSIBILITY

Without in any way detracting from the value and importance of worker participation, it is still important to emphasise that the ultimate obligation lies with management. Unfortunately too often the

10 Epstein, S S, Constraints in Decision Making, (1978) 329 *Annals of the New York Academy of Sciences*, 309-317, 312.

11 *Evening Post*, 18 June 1990, 11.

12 Jasanoff, S, The Bhopal Disaster and the Right to Know, (1988) 27 *Society, Science and the Law*, 1019-1029, 1123.

appointment of a safety officer in an undertaking has been taken by line management as a signal that safety aspects are no longer their responsibility and that such matters can be safely left to the safety officer. Nothing could be more disastrous and such an attitude could easily be reinforced with the greater prominence given to the management-labour health and safety committee or the appointment of workers' health and safety representatives. Regrettably the title "Safety Officer" still persists in New Zealand industry and is a reflection on the standard of management. There are two objections to this. Apart from perpetuating the idea that it's over to the safety officer to provide "safety," it leaves unrecognised the all important health hazards. By far the most preferred title in "Health and Safety Co-ordinator or Manager," thus emphasising the staff role of the appointee.

9.10 THE NEED FOR EXPERTISE IN THE WORKPLACE

Without detracting in any way from the positive aspects that have been expressed of the values of joint committees and workers' health and safety representatives, there is another important factor that must be considered. No matter how well organized the training may be for both committee members and representatives, there are limitations to what may be achieved. Many aspects of the health effects of the working environment require considerable scientific or technical expertise on the part of those monitoring the situation. Indeed with some small and medium sized undertakings it may mean getting the advice of appropriate professional consultants from time to time.

Hale *et al* point out that:

The concept of self-regulation embodied in the Robens Report was implemented largely through provisions for safety policy and safety representatives. Glendon and Booth make it clear that they do not and, indeed, were not intended to fulfil the technical and organizational problem-solving role essential to the analysis and control of health and safety problems in the workplace. Analysis of the effectiveness of safety policies has shown that they too frequently do not exist or are totally inadequate in depth and detail.¹³

The points raised are of equal relevance to New Zealand and will be even more important if the proposed *Management of Substances Hazardous to Health Regulations* are proceeded with.

13 Hale, A R, Piney, M & Alesbury, R J, The development of occupational hygiene and the training of health and safety professionals. (1986) 30 *Annals of Occupational Hygiene* 1-18, 2.

9.11 BEYOND REGULATION

Many aspects of the working environment that may give rise to disease or injury are not, and often cannot be subject to regulation. Consequently it is a fundamental contention of this thesis that regulation should be so drafted that it forms a framework for action beyond the regulatory requirements. Clearly it would be impossible for there be a requirement in any law that calling for action to be taken to an unknown and unspecified extent beyond its specific provisions. However it is strongly contended that the participative approach, if followed in a structured and informed way, will provide just that opportunity. As is first suggested on p 7, the best defence is a competent management with good systems and an alert, well-trained and informed workforce appreciative of the benefits of uncontaminated air and water.

9.12 SOME CONCLUSIONS

A publication of the Victorian Occupational Health and Safety Commission which reviews progress since the passing of the Occupational Health and Safety Act 1985 also provides an encouraging picture.¹⁴ The conclusions include such comments as:

Most employers and health and safety representatives reported positive improvements in health and safety practices and a heightened awareness of health and safety issues generally, which they attributed to the introduction of the Act.¹⁵

A need for further improvement was identified as is only to be expected after such a short trial period.

What also needs to be emphasised is that worker participation as envisaged in this thesis involves a complete change in approach. In the past great emphasis has been based on changing worker attitudes; a concept arising from a conviction that accidents were frequently a consequence of carelessness, inattention, accident proneness, etc. This has led, at times, to considerable use of what could be described as gimmicky promotional methods, safety contests, undue reliance on posters and other publicity material and other approaches all dedicated to encouraging changes in the behaviour and attitudes of workers. That is not to say that such do not have some use but their place is very much a supportive role not the main thrust, for they overlook the vital part that the organisation, its system and management play in setting the stage for an efficient workplace.

14 *A Greater Awareness: A Review of the Occupational Health and Safety Act 1985* (1989) Melbourne: Victorian Occupational Health and Safety Commission.

15 *A Greater awareness* (1989) 65.

It also follows that if there is not adequate worker participation and, for example, the view remains firmly held that given such opportunities and rights, workers will only abuse them, then the stage is set for a continuation of the present unsatisfactory trends. If there is a lack of trust on the part of employers it would be hardly surprising if the employees also showed a similar lack of trust and unwillingness to co-operate. Those who would resist such activity and, perhaps even more, a greater worker involvement could well heed the following comments of Carson:

Those who resist this suggestion on the grounds that organized labour will merely make use of health and safety issues for ulterior purposes must be challenged to confront the logic of their own argument. Are they really prepared to defend the proposition that, whereas trade unions cannot be trusted not to allow baser instincts to colour their approach to occupational health and safety issues, somehow or other management and employers can?¹⁶

Carson then went on to suggest that such a proposition would mean "that genuine disinterestedness and the capacity to transcend sectional interest are distributed according to social class."

Unsatisfactory aspects of past performance should not be allowed to stultify progress. When one's eye is firmly glued to the rear vision mirror of past attitudes, convictions and performance, little will be seen of the road of progress which still lies ahead. There is thus a considerable scope for wide-ranging changes in New Zealand in the immediate future. The unhelpful attitude of the Business Roundtable needs to be countered in a vigorous manner. Their view has origins in theoretical assumptions at one end of a spectrum far removed for the reality of day-to-day activity in the average undertaking.

9.13 THE MESSAGE FOR NEW ZEALAND

While the Occupational Safety and Health Bill 1990 has many highly desirable features, features absolutely essential to progress, there were some disappointing aspects. What then are some of the factors which may explain why there continues to be a lack of enthusiasm for the participative approach on the part of so many in management circles. Apart from the factors previously discussed in #7.21, #7.22 and #7.23,

Victim-blaming

Accident proneness

Accident causation, the victim and the system;

these could include:

¹⁶ Carson, W G *Hostages to History: Some Aspects of the Occupational Health and Safety Debate in Historical Perspective, The Industrial Relations of Occupational Health and Safety*, Creighton, B & Gunningham, N Eds (1985) Sydney: Croom Helm, 76.

Deterrence or retribution

Sanctions

The role of market forces

Killing and injuring as crimes

Accident Compensation and experience rating

These factors are examined in some detail in Chapters 11.

There is overwhelming evidence of the value of a participative approach to occupational health and safety combined with increased knowledge and training on the part of all in the workforce. While it would be preferable to see co-operative participatory moves emerging voluntarily, the reality is that without some degree of compulsion, that will not be achieved. Furthermore it is clear that for the participatory approach to be effective, employee participants, both health and safety representatives and committee members must have confidence that they will be backed by an effective unions. Regrettably as this is being written it would seem that quite the opposite may emerge. Thus there is an urgent need to create an atmosphere of mutual trust and confidence if the participative approach is to achieve its objectives, objectives which could have benefits well beyond the sphere of occupational health and safety.

CHAPTER 10

THE INFLUENCE OF WORKERS'/ACCIDENT COMPENSATION

10.1 THE LINK BETWEEN COMPENSATION AND PREVENTION

Workers' Compensation and now Accident Compensation have always been associated with the preventive effort though the depth of that association has varied over the years. As this link has been gradually increasing in many countries, it is important to consider any influence compensation factors may have on the preventive effort. That interaction varies from country to country. There is, for example, a substantial difference between New Zealand and the United States. In contrast, though there are variations between New Zealand and Canada, there are also similarities. Of prime importance to the link between prevention and compensation, is the 1913 report of the Chief Justice of Ontario to the Provincial Government which set the scene for the development of a uniquely Canadian system of Workers' Compensation Boards and Commissions wherein Workers' Compensation became closely linked with both rehabilitation and prevention.¹ Many years later the Ontario approach was to have a considerable influence in New Zealand both in the decision of the Workers' Compensation Board to establish and sponsor the National Safety Association and later with the Woodhouse Royal Commission.

In 1966 when the Government was considering whether to establish that Commission, the then Chairman of the Workers' Compensation Board and former Secretary of Labour, the late H L Bockett, advised the Minister of Labour, the late Hon T P Shand, that at the very least, he considered that the Commission could be expected to recommend a Workers' Compensation system based on the Canadian model.²

1 Meredith, Sir W, C J, Ontario, *Final Report on Laws Relating to the Liability of Employers*, (1913) Toronto: H M Printer.

2 Personal Communication from H L Bockett to I B Campbell.

Commenting on the American scene, Horovitz recalls that early in this century disenchantment grew with the tort remedy and all its uncertainty and that: "[a] new system was needed, and one that would also help in accident prevention and rehabilitation."³ Over succeeding years American Workers' Compensation insurers developed extensive safety departments. In many states, until the advent of OSHA the safety promotional work of the insurers was the major influence for safety.⁴ As Somers and Somers recall "[f]or many years it was widely believed that workmen's compensation was the mother of prevention."⁵ More recently, however, American insurers were forced to reconsider the emphasis they placed on the promotion of their safety services, following a serious accident on a construction site when 7 were killed and 11 were seriously injured when a temporary elevator crashed.⁶ The plaintiffs successfully joined the contractor's Workers' Compensation insurer to the action on the basis of its failure to maintain adequate inspection procedures on the site. Nevertheless with the prominence given to experience rating, American insurers have continued to be closely involved with preventive aspects.

Another early indicator of the effect of compensation on prevention was that of noise. Noise has been a problem in many industries since the beginning of the Industrial Revolution but moves to counter excessive noise both by regulation and voluntary efforts have been apparent only more recently. Compensation schemes have been traditionally based on loss of earnings but when a New York court awarded compensation for a noise-induced hearing loss when there was no related economic loss, the insurance industry became very concerned at the high cost of thousands of potential hearing loss claims. At that time the emphasis was on the unanticipated burden that befell insurers. In 1958 Glorig reported an estimated potential cost of compensation over the next decade of \$154 billion.⁷ As the compensation schemes in various countries provided for noise-induced hearing loss, preventive measures began to proliferate, with compensation providing the spur to action. However to understand more fully how both Workers' Compensation and now Accident Compensation have influenced the preventive effort, it is desirable to consider the origins of Workers' Compensation.

3 Horovitz, S B, *Injury and Death under Workmen's Compensation Laws*, (1944) Boston MA: Wright & Potter, 8.

4 Refer to comments on Experience Rating #10.9.

5 Somers, H M, & Somers, A R, *Workmen's Compensation: Prevention, insurance and Rehabilitation of Occupational Disability*, (1954) New York: John Wiley. 228.

6 *Nelson v Union Wire Rope Corp*, 1964, 199 NE 2d 767 (Ill).

7 Glorig, A, *Noise and Your Ear*, (1958) New York: Grune & Stratton, 133.

10.2 EARLY INFLUENCES OF WORKERS' COMPENSATION

In New Zealand the first tentative steps were made with the passing of the Employers' Liability Act 1882 which followed the British Act of 2 years earlier. Both Acts were very restricted measures as Lord Watson explained:

The main, although not the sole, object of the Act of 1880, was to place masters who do not upon the same footing of responsibility with those who do personally superintend their works and workmen, by making them answerable for the negligence of those persons to whom they entrust the duty of superintendence, as if it were their own. In effecting that object, the Legislature has found it expedient in many instances, to enact what were acknowledged principles of the common law.⁸

In essence a worker could only succeed if he could prove that the accident occurred because of a defect in "the ways, works, machinery or plant," or from the negligence of a supervisor.

In most jurisdictions Workers' Compensation was enacted following a recognition of the shortcomings of the common law remedy for compensating victims injured as a result of another's conduct that was considered morally and socially unacceptable or at least highly undesirable. *Priestley's* case referred to on p 91 in an illustration of some of the deficiencies of the common law. From the inception of Workers' Compensation, the interests of employers and, to a considerable extent, their insurers, have played a part in shaping the legislation. There were, for example, limitations in both the total amount and the duration over which compensation was payable. Possibly the greatest illustration of the consideration given by the early legislation to employer and insurance interests were the time limitations in the disease provisions. New Zealand's first provision required the disease to have been contracted within 12 months of the date of disablement and the claimant must have been in the relevant employment within the previous 12 months. The clear intention was to ensure that, as far as possible, a claim lay only with the employer (or the insurer) in whose employment the culpable exposure occurred. Plainly such restrictions would have disadvantaged many claimants whose condition developed over time or who could not establish in which employment the crucial exposure occurred.

However where there is only one indemnifying agent as is the case with ACC, there is no need for such restrictions, even assuming such could be justified. A situation which an earlier move failed to recognise with the passing of the Workers' Compensation Amendment Act 1947. Though that Act

⁸ *Smith v Baker & Sons* [1891] AC 325, 354.

created a near monopoly of Workers' Compensation and Employers' Liability insurance for the State Insurance Office, the opportunity was not taken to remove the time limitations on disease claims and even the Accident Compensation Act 1972 perpetuated them. This is commented on more fully in #10.7.

For many years occupational disease was not seen as a problem for employers and insurers; with dermatitis being regarded as the major challenge. Somers and Somers comment:

Even after the beginning of the industrial hygiene movement around 1910, when the industrial causation of such diseases was being established, the problem was thought of as one for health insurance rather than workmen's compensation or accident insurance.⁹

In many cases, when it was eventually decided to compensate for "industrial disease", it was assumed that the field would not be very large and could be met by prescribing a modest number of diseases together with the corresponding industries or occupations and establishing a presumption the disease was work-related. Thus unless there was some general provision giving claimants the right to prove the work-connection of a non-prescribed disease, some would not be compensated, until the authorities recognised that a justification existed for adding that disease to the list.

More recently dust-induced diseases of the lung have been gaining increasing attention. In the United States alarm bells started ringing when the first claims began to surface for diseases like silicosis, pneumoconiosis apart from noise-induced hearing loss and other conditions with a long period of latency. As Somers and Somers explained:

More persuasive is the employer-carrier [insurer] argument that they should not be expected to assume, all at once, the "accrued liability" when diseases like silicosis or industrial loss of hearing, which have long existed, first become compensable.¹⁰

Many states were attracted to the employers' position and enacted restrictions which clearly penalized many workers with an otherwise valid claim.¹¹ That various legislatures have been willing to place the financial interests of employers and their insurers above the health and financial well-being of workers raises serious ethical questions. One of the worst examples of the effect of dust was a hydro tunnel at Gauley Bridge, West Virginia, that was bored through rock with a high silica content. There some 470 workers died.¹² Castleman comments:

9 Somers, H M & Somers, & A R, *Workmen's Compensation: Prevention, insurance and Rehabilitation of Occupational Disability*, (1954) New York: John Wiley. 49.

10 Somers & Somers (1954) 51.

11 Somers and Somers at p 52 give examples of a number of states such as Pennsylvania, where in 1954, compensation for silicosis, anthraco-silicosis and asbestosis was severely restricted.

12 Barth and Hunt quote one account which mentions that 476 had died with 1,500 more dying from silicosis alone. n 9, 371.

The situation could be very different with a state insurance carrier that didn't have to concern itself with competition for the lowest insurance rates on the one hand and a desire to maximize profits on the other.¹³

Castleman goes on to note that in Germany where there have been state insurance carriers since Bismark's time people were compensated for lung cancer following asbestosis since 1939.

Difficulties faced by American miners incapacitated by dust became such an issue that it led to the passing of the Coal Mine Health and Safety Act of 1969 and the Black Lung Benefits Act of 1972. Under the latter Act, miners who had worked underground for 15 years were presumed to have a work-related condition if incapacitated by lung disease irrespective of x-ray findings. For good reason, therefore, do many writers such as Barth and Hunt, and Markowitz and Landrigan stress the interrelationship between compensation and prevention.

Another way in which Workers' Compensation may have led to more emphasis being placed on safety issues was that in most jurisdictions, initially only traumatic injury was covered. Although prior to the advent of Workers' Compensation, an injured person had a right to pursue a claim at common law for damages. Ison reports that tort claims for disease were very rare.¹⁴ While this may be a reflection a lack of appreciation of the nature and extent of the health issues involved, though the history of work-related disease predates Workers' Compensation by hundreds of years, nevertheless it is likely that, with some exceptions, its overall incidence in earlier days was not nearly as great as it probably is today.

The extent of the problem of coverage is well illustrated by developments in Britain following the recommendation of the Pearson Royal Commission:

In addition to compensating the occupational diseases listed in the schedule of prescribed diseases, benefit should become payable where the claimant could prove that his disease was caused by his occupation and that it was a particular risk of his occupation.¹⁵

Wilson in commenting on the Pearson recommendation refers to the restrictive effect of the words "a particular risk of the occupation" stating that:

13 Castleman, B I, *Asbestos: Medical and Legal Aspects* 3rd Ed, (1990) Englewood Cliffs NJ: Prentice Hall, 139.

14 Ison, T G, *The Forensic Lottery*, (1967) London: Staple Press, 26.

15 *Report of the Royal Commission on Civil Liberty and Compensation for Personal Injury*, Cmnd 7054 (1978) London: HMSO, 379.

The reason behind the test was to limit the claims, so that the system would not be flooded with claims, as was feared.¹⁶

An independent body, the Industrial Injuries Advisory Council was given the task of reviewing this issue. Perhaps not surprisingly the Advisory Council was of a similar view namely that it was necessary to restrict access to the compensation process so that any authority charged with the task of its administration would not be overwhelmed with a large workload.¹⁷ Such a stance is not uncommon as bureaucracies appear often more attentive to administrative convenience than to dispensing natural justice.¹⁸ The recommendation of the Pearson Commission was not accepted by the British Government on the grounds that:

... there could be considerable practical difficulties of assessment and administration giving rise to disproportionately high costs in relations[sic] the benefit gained; and the resources to launch such a scheme are not available.¹⁹

Indeed Britain, in passing the Social Security and Housing Benefit Act 1982, appears to have walked away from the problem. That Act abolished the Industrial Injury Benefit for work-related injuries and specified diseases. The benefit was then only 2.75 per week more than the Sickness Benefit, though at the outset of the scheme in 1948, the differential between the two benefits had been much greater with the Industrial Injury Benefit being 73% higher than the then the Sickness Benefit as opposed to the 1982 difference of 12%. As a consequence of the 1982 legislation, employers are now liable to meet the cost of sick pay for the first 8 weeks of incapacity in any one tax year irrespective of the nature of the injury or illness. These payments, however, are recoverable by the employer through a deduction from their monthly contributions to Social Security. Thereafter the injured worker receives the standard Sickness Benefit. There is also a Disablement Benefit for those with permanent disabilities.

16 Wilson, S R, Occupational diseases – the problem of a comprehensive system of coverage, (1980) 11 *Industrial Law Journal*, 141-166, 142.

17 Wilson (1980) 143.

18 The suggestion in the recent White Paper on Accident Compensation referred to on p 38 concerning legislating against stress and mental injury as compensable though ostensibly on the grounds of potential cost almost certainly reflects administrative difficulties.

19 R K L, Social Security: Benefit for industrial disease, (1984) 13 *Industrial Law Journal*, 128-130, 129.

10.3 THE 1930 ROYAL COMMISSION

In 1930 the New Zealand Government set up a Royal Commission to consider the problems of Workers' Compensation. Among the matters considered was a suggestion that all work-related diseases be covered. In turning down that suggestion the Commission adopted the reasoning of a 1919 Departmental Report to the British Government stating;

The extension of the Act to cover any disease or injury which is not specific to the employment would, we are satisfied, give rise to constant and irritating disputes, and involve employers and workers in a great deal of costly and fruitless litigation, and would not, except in rare instances, secure any benefit to the disabled workman.²⁰

A schedule approach was recommended similar to that in Britain and in the ensuing years a number of additional diseases were added to the New Zealand schedule. By 1942, however, there were only 13 diseases in the schedule.

10.4 SUBSEQUENT DEVELOPMENTS

In New Zealand another early link between Workers' Compensation and prevention is to be found in s 29 of the Workers' Compensation Amendment Act 1947 which authorised the State Insurance Office to fund research in work-related accidents, injuries and diseases. That Act established the State Office as a near monopoly, but only a few months after it commenced its new role, a new Government was elected with a policy of repealing the monopoly. The 1947 provision was re-enacted in wider form in the Workers' Compensation Amendment Act 1950, with those powers being vested in the newly formed Workers' Compensation Board. The 1947 and 1950 provisions are very similar to s 73 of the British National Insurance (Industrial Injuries) Act 1946. Personal inquiries in Britain some years after the latter Act was passed failed to uncover any evidence that the section had been availed of. As already recorded, in New Zealand the Workers' Compensation Board did act, though almost entirely with respect to injury prevention.

What then has been the effect of Workers' Compensation in New Zealand with respect to prevention and more particularly the prevention of occupational disease? One could look in vain for signs of positive influence with respect to the prevention of occupational disease. It is probable that the restrictive compensation provisions regarding disease had a negative influence, controlling claims rather

²⁰ *Workers' Compensation Commission: Report of the Commission*, Parliamentary Paper H 11A (1930) 12.

than disease. The demanding time limitations already referred, clearly penalized many whose condition only manifested itself over time. The dearth of statistics of occupational diseases over the years referred to on p 46 *et seq* infer more than they tell. Clearly the only recipients of compensation were those whose disease fitted in strictly with the provisions of the Act and would be almost if not exclusively occupational rather than work-related diseases. It is not unreasonable to expect that any preventive action, if taken, would be limited to such cases.

The limitations outlined above suggest it logical to consider the possibility that the constraining compensation provisions could well have had the direct effect of seriously restricting preventive efforts with respect to occupational disease. As Ashford comments:

The failure of the nation's injury reporting system and workmen's compensation system to include occupational disease adequately has contributed to the failure of society to recognize the severity of occupational health hazards.²¹

10.5 THE INFLUENCE ON PREVENTION

It is thus not unreasonable to assert Workers' Compensation and now Accident Compensation have had a part to play both presently and in the past in constraining preventive effort on health hazards. This, on the basis that where a liability is known to exist, it is logical to expect some action to be taken to limit that liability or on the other hand to see that funds are available to cover it. One has only to consider the burden that have been placed on the insurance industry in many countries by the immense liability incurred for hitherto unexpected claims arising out of the exposure of workers to asbestos dust. Clearly had the insurance industry any forewarning of what might occur, it would have taken firm action long ago. Whether that action had been a substantial increase in premiums or cancellation of policies, the employers involved would have been forced to adopt much more stringent preventive measures or seek substitutes. Regrettably as reported by Lilienfield and quoted in #4.10 some American insurers co-operated with industry to suppress findings of research into the hazards of asbestos.

The reality is that during the Workers' Compensation era in New Zealand, the cost of compensation for asbestos-related disease was never a factor in the rate-making process, for the claims did not arise until after Workers' Compensation was phased out. Rates set out in the Employers' Liability Regulations were based on past claims experience in each statistical classification. The Workers' Compensation Board collected details of wages paid, claims paid and outstanding year by year for each

²¹ Ashford, N. *Crisis in the Workplace*, (1976) Cambridge MA: MIT Press, 9.

rate classification and from that information arrived at a rate which was recommended to Government for inclusion in the regulations. Thus no provision was made for future contingencies arising from claims which could not be anticipated when the rates were set. Such an approach was substantially in line with the practice used in other countries though in countries like the United States the procedure was a little more sophisticated. Had Accident Compensation not come about, New Zealand would have adopted a formula more closely resembling that of the United States.²²

10.6 A PRACTICAL EXAMPLE

One could cite the Fletcher's asbestos products factory in Christchurch. Long after the factory ceased operations, former employees became aware that they were suffering from a disease that was probably related to their past exposure to asbestos dust. That exposure occurred before the advent of Accident Compensation, and even Fletcher's are not sure which insurer had carried the Workers' Compensation and Employers' Liability risk.²³ It is likely that it was a mutual insurer that is no longer in existence. In addition cases of asbestos-related diseases incurred by former employees of electric power stations have recently come to light, where the exposure of some to asbestos dust also occurred before the advent of Accident Compensation. As Accident Compensation is only payable where the relevant exposure occurred on or after 1 April 1974, unless liability at common law can be established. This is unlikely in view of the decision of the House of Lords in *Cartledge v Jopling & Sons Ltd* [1963] AC 758, where the plaintiffs symptoms had not become apparent until the limitation period had expired. Whereas in Britain, following that case a judicial inquiry was held following which the Limitation Act 1939 was amended. No such amendment has yet been made to New Zealand's Limitation Act. The effect of the amendments to the British legislation was tested in *Central Asbestos Co Ltd v Dodd* [1973] AC 518.

However recent litigation in New Zealand leaves the matter wide open as a decision of the High Court has been overturned leaving it clear for the plaintiffs to proceed.²⁴ It is understood that the substance of their case against the Government is that it failed in its regulatory function to take action earlier when the serious hazard presented by asbestos became established. The tardy provision of the Asbestos Regulations is referred to on p 82.

22 Workers' Compensation Board, *Annual Report and Statement of Accounts for the Year ended 31 March 1969*, 7.

23 Personal communication from S Wilkinson.

24 The High Court decision was reported in *McKenzie v Attorney-General* [1991] NZAR 97.

The Law Commission in its review of Accident Compensation recommended:

... that the requirement of relevant employment after 1 April 1974 be removed. It will be enough if incapacity begins after that date.²⁵

10.7 SLOW PROGRESS TO FULLER DISEASE COVERAGE

Though a realistic move towards Workers' Compensation coverage of disease claims in countries of the British tradition has taken time to come about, as long ago as 1877 the Swiss Federal Council prepared a list of 45 substances which, if used in industry, could cause occupational disease. Germany followed in 1883 and Austria in 1897. However the original British Workmen's Compensation Act 1897 and the first New Zealand Act of 1900 had no provision for occupational diseases. They were not covered in Britain until 1906 and in New Zealand until 1908. Even then the application of the disease provision was very restricted, in New Zealand, being initially limited to anthrax, lead poisoning, mercury poisoning, phosphorus poisoning, arsenic poisoning and any other disease declared by Order in Council.

A few other diseases were added over the years and from 1948, all occupational diseases were covered. The fairly stringent provisions of the Act still applied and compensation was only payable if the disease was contracted within 12 months previous to the date of the disablement. If the death or incapacity occurred more than 12 months after cessation of the relevant employment, then no compensation was payable. In the Workers' Compensation Act 1956 the former requirement was dropped and the other 12 month period increased to 2 years. There were special provisions for disease due to some form of radiation (20 years) and subsequently hydatids (10 years). Other occupational diseases with long latency periods, often leading to death, received no special mention. Asbestosis and mesothelioma which may only manifest themselves often many years after exposure to the asbestos dust, are cases in point.

The time limitations were not finally removed until the passing of the Accident Compensation Act 1982. Stapleton pertinently commented on the time those restrictions which persisted in the New Zealand Accident Compensation scheme, stating that this, perhaps, indicated "the extent of the neglect of disease issues by formulators of that scheme."²⁶

²⁵ Law Commission, *Prevention and Recovery: Report on the Accident Compensation Scheme, Report No 4*, (1988) Wellington: Law Commission, 49.

²⁶ Stapleton, J, *Disease and the Compensation Debate*, (1986) Oxford: Clarendon, 23.

10.7.1 JUDICIAL RECOGNITION?

Prior to the limited provisions for work-related disease and, no doubt as a consequence, the courts often seemed anxious to do justice by what many consider to be straining the popularly accepted meaning of the word "injury." In one notable case the injury was the assault on the person by an offending bacillus.²⁷ As Lord Birkenhead explained in a later case:

... the Courts have necessarily applied to infection by microscopically small organisms language which is more commonly used of, and therefore suggests, larger and more material forces; thus the invasion of a bacillus is conceived of as a blow or physical result. And an interval is assumed (perhaps rightly) before the assault, which is the accident, is followed by the infection or contraction of the disease which is the injury.²⁸

And later after commenting on the suggestion that on the above view, every disease which proceeds from bacilli such as influenza must be brought within the Act, stating:

It is a partial and perhaps a complete answer to this objection that in the proceedings under the Workmen's Compensation Act it is for the applicant to satisfy the arbitrator that the bacillus infection which is said to constitute accident invaded his system under such circumstances that the accident "arose out of and in the course of the employment." Whereas in *Brinton's* and the present case, the bacillus is not met with, or is very rarely met with except among the implements or the materials of the particular employment, the onus which is imposed on the applicant is very much lightened. But where the invading bacillus may be found anywhere -- in the train, in the home, or in the public house -- a prudent arbitrator will require strict proof such as can hardly in the nature of things be often forthcoming that the "accident" in fact "arose out of and in the course of employment."²⁹

When provision was made in the New Zealand Workers' Compensation legislation for compensation for work-related diseases, the alternative right to prove that "the disease is personal injury by accident" was retained in all subsequent legislation, including s 28(5) of the Accident Compensation Act 1982. However under today's circumstances the value of that alternative would seem to be very limited.

²⁷ *Brintons Ltd v Turvey* [1905] AC 230.

²⁸ *Innes (or Grant) v Kynoch* [1919] AC 765, 771.

²⁹ *Innes v Kynoch* 771.

When considering those early cases it is important to remember that medical knowledge then was not as extensive as it is today. At that time there were frequent references to idiopathic and non-idiopathic diseases.³⁰ The former was defined as a primary disease, which was not the result of any other disease but of spontaneous origin. In contrast a non-idiopathic disease was regarded as one having a definite starting point established by evidence.

Elisburg in answering his own query as to why the problems of occupational disease have not been sufficiently recognized until relatively recently, commented:

It may be attributed in part to the complacency of the state workers' compensation system administrators and the insurance industry, who saw few occupational disease claims, and assumed that the problem in actuality was far less than experiences reflected. Moreover, awareness of toxic substances, carcinogens, and their impact on individuals has only emerged to its true dimensions in recent years.³¹

10.7.2 LATENCY AND LIMITATION OF ACTIONS

The limitation on time for taking action under the Workers' Compensation and until more recently, Accident Compensation mentioned on p 172, was also a factor in tort claims. Stapleton covers the various aspects in some depth commenting that:

... these rules operate particularly harshly in disease cases where delay in making a claim is often the entirely reasonable result of ... latency of symptoms themselves.³²

10.8 HOW COMPENSATION AFFECTS PREVENTION

The significance of the proof demanded in compensation claims clearly is equally relevant to the implementation of preventive measures. A failure of a worker to prove the link between the work and the disease may well suggest that there is no problem. The same difficulties that have been highlighted, such as those diseases which manifest themselves only over time, a lack of positive proof of toxicity, etc, are equally important where drastic or expensive controls are being called for or, at times, the

30 Campbell, I B & Neazor, D P, *Workers' Compensation Law in New Zealand*, (1964) Wellington: Sweet & Maxwell, 141.

31 Elisburg, D, Federal Occupational Disease Legislation: A Current Review, *Current Issues in Workers' Compensation*, Chelius, J Ed, Kalamazoo, MN: Upjohn Institute, 258.

32 Stapleton, (1986) 30.

banning of what have been regarded as a very useful substance. It is also reasonable that more than a mere suspicion could be required to justify action. However an important issue still remains; what action should be taken when, even though a claimant may be unsuccessful, there is a strong suspicion that some agent involved in the claimant's work may have been responsible for the disease. One has only to think of the number of agents that are suspected of being carcinogenic but where positive proof is lacking. It is strongly suggested that failure to establish a compensation claim should not be regarded as giving the substance, process or workplace "a clean bill of health." In some cases it may be a very simple matter to change a system or substitute the element in question with an equally effective alternative.

Without doubt compensation aspects have their *greatest* effect on preventive measures in those cases involving work-related diseases. As an ILO report puts it, there is a considerable distinction between diseases with low incidence in the general population and those with a high incidence "such as ankylostomiasis in tropical regions, or chronic bronchitis in cold damp regions."³³ Compensation authorities must have some standards of proof which could range from being far too rigid to too lenient. At worst in the latter case that could also lead to the wrong or unnecessary preventive measures being implemented. At best it could be maintained that alternative would be preferable to a too exacting standard of proof and no preventive action. On balance, Sir William Meredith's 1913 views which have been reconfirmed by both the Woodhouse Commission and the Law Commission, namely that consideration be given to the "real merits and justice of the case," provide a sound principle to be followed. Clearly there is no perfect answer to the considerable measure of uncertainty which surrounds proof.³⁴

10.9 THE BURDEN OF PROOF

It is logical, therefore, to examine the standard of proof that may be called for in compensation cases to establish a valid claim. In the early days of Accident Compensation it was frequently stated that the Accident Compensation Commission as it was then, was not a court but was exercising a quasi-judicial function and "does not use the adversary system adopted in Courts of law."³⁵ Thus it is not subject to

³³ International Labour Organisation Report, *Report VII (b) Amendment of the List of Occupational Diseases Appended to the Employment Injury Benefits Convention, 1964 (No 121)*, (1980) Geneva: ILO, 9.

³⁴ Law Commission (1988) 88.

³⁵ Blair, A P *Accident Compensation in New Zealand* (2nd Ed) (1983) Wellington: Butterworths, 156.

the same restraints when for example, determining the admissibility of any evidence or information received. Though the Commission was required to observe the rules of natural justice, there was, nevertheless, room for differing views and interpretations to evolve. It would seem that more recently a less rigid approach has emerged which could be of considerable importance in occupational disease claims. *Fyfe's* case referred to on p 183 suggests that there has been a change in stance on the part of the Appeal Authority from 1982.

With Workers' Compensation, the burden of proof always lay with the claimant, though, in general, the courts took what could be described as a reasonable, if not a lenient view of that requirement. As Lord Wright explained:

It has been established by various decisions of this House that the Workmen's Compensation Act is a remedial measure intended to give rights beyond what the Common Law gave, and that it is a practical measure expressed in non-technical language, to be construed according to the ordinary sense of mankind.³⁶

Frequently it was a question of the court looking at the balance of probabilities. As Lord Birkenhead put it:

If the facts which are proved give rise to conflicting inferences of equal degrees of probability so that the choice between them is a mere matter of conjecture, then, of course, the applicant fails to prove his case, because it is plain that the onus in these matters is upon the applicant. But where the known facts are not equally consistent, where there is ground for comparing and balancing probabilities as to their respective value, and where a reasonable man might hold that the more probable conclusion is that for which the applicant contends, then the arbitrator is justified in drawing an inference in his favour.³⁷

This principle could well have considerable relevance with respect to occupational disease claims where the matters at issue may be such that it would be impossible for claimants to prove a causal link as a scientific fact.

Stapleton points out how decisions based on the balance of probabilities can be unsatisfactory stating:

In situations where the disease's incidence is up to double or exactly double the general incidence [2 per 1000], no individual can prove work-relatedness (so all fail to prove causation) even though, say in the latter case, half are in fact work-related cases. On the

³⁶ *Craig v Dover Navigation Co Ltd* [1940] AC 190, 199.

³⁷ *Lancaster v Blackwall Colliery Co Ltd* [1918-19] All ER 328, 330.

other hand, in situations where the workplace incidence is, say, 5 per 1000, all victims ... can show that their illness was more probably work-related than not, even though two of the five are not work-related.³⁸

Stapleton continues; "[t]hese examples ... illustrate the intrinsic drawbacks to the all-or-nothing balance of probability test ..."³⁹

A number of cases have been decided since the Accident Compensation Act 1972 came into force in 1974. In the main those cases, which concern occupational disease depend on the interpretation of the words "due to the nature of any employment" but there have been others which have been decided on the facts -- the possible occupational causation -- rather than a matter of law. In one case compensation was denied to a cleaner who contracted dermatitis and sought to establish that it was caused by the cleansing materials that she was using. It would seem that the Appeal Authority took a rather legalistic approach holding that no special risk of dermatitis had been proved as the "... ordinary duties of a cleaner did not expose her to a special risk of dermatitis."⁴⁰ In another case, however, a claimant who developed dermatitis after being exposed to cutting oils was awarded compensation.⁴¹

In the case of an appeal by *Dryden*⁴² the Appeal Authority traced the history of the relevant words in the section from the time of the 1947 amendment to the Workers' Compensation Act 1922, through to the 1972 predecessor to the present Accident Compensation Act 1982. Two decisions of the High Court of Australia were referred to but the importance of the slight difference in the wording of the Australian statute was commented upon.⁴³ The New Zealand Act referred to "any employment," but the Australian Act to "the employment." The judgement goes on:

This liberal intention of Parliament must be given effect to in construing s 19 of the Workers Compensation Act and now s 67 of the Accident Compensation Act. In addition, the phrase "any employment" must be given effect to. "The word 'any' is a word of very wide meaning and prima facie the use of it excludes limitations." (*Clarke-Jervois v Scutt* [1920] 1 Ch 832 cited in *Words and Phrases Legally Defined* Vol 1, p 94)⁴⁴

38 Stapleton, (1986) 41.

39 Stapleton, (1986) 41.

40 *Decision No 50* (1977) 1 NZAR 295.

41 *Re Johnston Decision No 120* (1978) 2 NZAR 438.

42 *re Dryden Decision No 79* [1977] 1 NZAR 355.

43 *Commonwealth v Thompson* (1960) 104 CLR 48 and *Commonwealth v Bourne* (1960) 104 CLR 32.

44 *Dryden* 358.

In a recent decision of the Accident Compensation Appeal Authority four tests, which have been derived from the two *Commonwealth* cases referred to above, were approved:

- 1 The work engaged in by the employee must have an inherent tendency to cause or aggravate that particular disease.
- 2 This tendency must exist because the work itself possesses, or contains a particular property or characteristic which gives rise to that disease.
- 3 Such tendency, property or characteristic must be peculiar to that work and not found in employment generally.
- 4 Because of that peculiar and distinctive tendency, property or characteristic.⁴⁵

One could well call into question those tests on the grounds that they are too restrictive and would fail to achieve the objective of the Act; namely that those suffering a work-related disease be compensated. For example the cleaner referred to on p 178 who claimed to have contracted dermatitis as a result of exposure to cleaning materials, could not demonstrate that her employment had an inherent tendency to cause dermatitis. Yet it is common knowledge that detergents can cause skin problems as witness the many housewives who regularly wear rubber gloves when using detergents.

Apart from determining causal factors, one could well query whether in the light of today's greater knowledge of and concern for occupationally-related disease, whether the present provisions are adequate for the undoubted needs? In the report of the Woodhouse Commission it was clear that their conviction was that a strictly legalistic approach will not do justice to the situation, as their references to the proposed administrative body (now ACC) confirms:

Independence would be necessary to enable this body to work with detachment in the new field; and given a constitution wide enough to ensure that its decisions would never become illiberal and would always be made upon the real merits and justice of the case.⁴⁶

And reinforced later:

There should be discretion to deal with any unusual circumstances and every decision should be based on the real merits and justice of the case.⁴⁷

This view was reaffirmed by the Law Commission in its review of Accident Compensation when it commented on draft clauses in its outline of legislative proposals.

⁴⁵ *Leitch v ACC* [1990] NZAR 24, 32.

⁴⁶ *Compensation for Personal Injury in New Zealand: Report of the Royal Commission of Inquiry* (1976) Wellington: Govt Printer, 86.

⁴⁷ Woodhouse Report (1967) 127.

Draft clause 74, drawing on the language of Sir William Meredith, the architect of the Ontario Workers' Compensation scheme back in 1913, requires consideration to be given to the real merits and justice of the case.⁴⁸

This also reflects a similar view of the Woodhouse Commission at p 87 of that Report.

That the current position is not as envisaged by the Woodhouse Commission is evident from many of the issues raised before the Appeal Authority and here the words of Lord Diplock concerning the British Social Security legislation are of more than passing interest:

To find out the meaning of particular provisions in social legislation of this character calls, in the first instance, for a purposive approach to the Act as a whole to ascertain the social ends it was intended to achieve and the practical means by which it was expected to achieve them. Meticulous linguistic analysis of words and phrases used in different context in particular sections of the Act should be subordinate to this purposive approach.⁴⁹

The present position in New Zealand is scarcely surprising since so many of those responsible for making the early decisions within ACC and elsewhere were previously involved with the administration of the Workers' Compensation Act in one way or another. They were well acquainted with the standard of proof then required as to causation and other matters. Furthermore, they were still being guided by a statute which perpetuated identical language in many vital sections and nowhere in the Act is there any reflection of the Royal Commission's basic ideas on this point. In effect, the restrictive standard of proof applicable under Workers' Compensation seems largely still to apply.

After referring to the Woodhouse Commission's views on the need to base decisions on the real merits and justice of the case, Palmer comments:

Such liberality found no favour with the legislators who spelt out a system of entitlement where the applicant must prove his case under detailed sections drawing very fine lines. Both the Commission and the Appeal Authority take the view that the applicant must prove his claim, a posture that brings back some unfortunate memories of the common law on some occasions. The Commissioners have felt the need for greater flexibility, and this is reflected in the amendments they have sponsored.⁵⁰

48 Law Commission (1988) 88.

49 *Jones v The Secretary of Social Services* [1972] AC 944, 1005.

50 Palmer, G W R, *Compensation for Personal Incapacity*, Wellington: (1979) Oxford, 400.

And again: "[t]he administration of the Act has not matched the vision of the original blue print."⁵¹

Nowhere could these factors make for more difficulty than in the field of occupational disease. Ison's comments on the New Zealand scene are in line with the views of Lord Diplock and Palmer, namely:

In social insurance, as in other areas of justice and public administration, it is difficult to formulate clear statements of burdens and standards of proof that can and will be applied consistently. In an apparent attempt to avoid some of the complexities found in legal literature, the ACC has prescribed as its evidentiary test: "from the information and evidence available, does the claims officer agree and believe that the claimant is entitled to rights under the Act?"⁵²

The former Appeal Authority has published two books on Accident Compensation and in the later one after referring to the fact that with Accident Compensation the "onus of proof" rules do not apply and that the adversary system is not used in the administrative process, stated:

... his claim may be examined by the Corporation's officers in an inquisitorial and investigatory way whereby they assist in collecting the relevant material.⁵³

He then quoted with approval the words of Buckley LJ in relation to a decision of a medical tribunal under the National Insurance (Industrial Injuries) Act 1965

These are not adversary proceedings, they are inquisitorial proceedings and in such proceedings, questions of burden of proof do not arise in the same way as they would in proceedings between parties in a law suit ... but of course the fact remains that the Medical Appeal Tribunal ... must be satisfied that the claimant is entitled to benefit; and so in a sense and subject to such statutory assumptions as are presented by the Act itself, it does not rest with the claimant in the end to make out his claim. The Tribunal have, in my view, a duty to make all reasonably necessary inquiries in order to enable it to reach a conclusion ...⁵⁴

And earlier he quoted part of a passage from Dixon J. (as he was then) which has since been approved by Davison CJ.⁵⁵

⁵¹ Palmer (1979) 404.

⁵² Ison, T G, *Accident Compensation: A Commentary on the New Zealand Scheme*, (1980) London: Croom Helm, 94.

⁵³ Blair, (1983) 180.

⁵⁴ *R v National Insurance Commissioner, ex parte Viscusi* [1974] 2 All ER 724, 732.

⁵⁵ *Jones v Accident Compensation Commission* [1981] NZACR 105, 109.

The truth is that, when the law requires the proof of any fact, the tribunal must feel an actual persuasion of its occurrence or its existence before it can be found. It cannot be found as a result of a mere mechanical comparison of probabilities independently of any belief in its reality. No doubt an opinion that a state of facts exists may be held according to indefinite gradations of certainty; and this has led to attempts to define exactly the certainty required by the law for various purposes. Fortunately, however, at common law no third standard of persuasion was definitely developed. Except upon criminal issues to be proved by the prosecution, it is enough that the affirmative of an allegation is made out to the reasonable satisfaction of the tribunal.⁵⁶

The Appeal Authority's words are reminiscent of a comment by Ison when referring to the procedures of the Workers' Compensation Board of Ontario that they "are supposed to be inquisitorial rather adversarial."⁵⁷ Ison was concerned with the availability of all medical evidence held by an administrative tribunal to an individual claimant in an appeal.

The stand taken by ACC with respect to disease claims is perhaps well illustrated by the case of the firemen who suffered some unusual effects following on from their attendance at the ICI fire in Auckland. Refer to p 37. The report of the Committee of Inquiry states that:

The Corporation [ACC] managers we interviewed acknowledged that "this area of claim is in the grey area of disease and injury. Without reliable medical evidence, we'd probably put symptoms which develop after a long period down to disease."⁵⁸

And later:

... the Corporation's processes can cause substantial expense and stress to those who claim compensation, particularly in the "grey area" acknowledged by the Corporation to exist in the case of occupational disease.⁵⁹

Here again the key question would be what is "reliable medical evidence?"

However in a recent decision of the Accident Compensation Appeal Authority the following appears:

⁵⁶ *Briginshaw v Briginshaw* (1938) 60 CLR 336, 361.

⁵⁷ Ison, T G, Access to Information and Procedural Due Process, in *Freedom of Information: Canadian Perspectives*, J D McCamus Ed, (1981) Toronto: Butterworths, 83.

⁵⁸ *Health Consequences of the ICI Fire*, Report to the Minister of Health, (1990) Wellington: Govt Printer, 44.

⁵⁹ *Health Consequences ICI Fire* (1990) 122.

Prior to 1982 the Corporation's policy was based on interpreting the corresponding provision of the [1972] Act so as to require a claimant to show that the general class of work in which the claimant was engaged had by its nature a recognised tendency to cause the disease complained of. Thereafter, however, the test was widened by allowing compensation also when there was a causal connection between the particular work and the disease -- an approach based on *Lynch v Attorney-General* [1959] NZLR 455 and *Connair Pty Ltd v Fredericksen* (1979) 53 ALJR 505.⁶⁰

Interestingly, Blair J, the first Accident Compensation Appeal Authority, in commenting on *Lynch's* case, stated "[i]t may be considered, however, that he expressed the law too widely."⁶¹

Clearly an ACC claimant is in a much more favourable position than one in many other countries pursuing a common law or Workers' Compensation claim. Nevertheless the task of establishing a nexus between the employment and the disease frequently will be a difficult one despite all the help that the tribunal can give.

10.10 OVERSEAS EXPERIENCE

Roblee provides an American view of the importance of the standard of proof required before a particular condition could be accepted as being "due to the nature of any employment." As he points out:

That so many workers fail to discharge their legal burden has little to do with legitimate distinctions about the nature of their individual disabilities. Rather, it is directly related to the shortcomings of medical knowledge. In this context workers suffering from diseases not yet linked to work exposure and workers who have occupational diseases which medicine cannot reliably diagnose are in a similar position. All must wait upon the progress of medical research, as an inextricable result of their burden of proof.⁶²

Roblee goes on:

Responsibility for the initial research and surveillance necessary to identify hazards and for reduction of contaminant levels should rest with industry.⁶³

⁶⁰ *Re Fyfe: Decision No 29/87*, (1987) 6 NZAR 317.

⁶¹ Blair, A P *Accident Compensation in New Zealand* (2nd Ed) (1983) Wellington: Butterworths, 88.

⁶² Roblee, R The dark side of Workers' Compensation: Burdens and benefits in occupational disease coverage, (1978) 2 *Industrial Relations Law Journal*, 596-631, 629.

⁶³ Roblee (1978) 623.

That New Zealand is not alone with its problems may be further gleaned from the work of Barth and Hunt.⁶⁴ In addition to examining the position in the United States they also looked at Ontario and a number of European countries stating:

The most common and significant thread running each of these workers' compensation systems ... is that administrators depend heavily on a schedule of covered diseases. Even when the list is not an exclusive one, it defines the range of compensable illnesses.⁶⁵

These authors clearly thought the Europeans and Ontario were doing better than the United States from a compensation viewpoint. Nevertheless schedules of occupational diseases are of no help to the determination of work-related disease claims; the more difficult problem by far.

The problem of proof has been widely discussed in the United States. Though much reliance has been placed on epidemiological evidence, it is acknowledged that though soundly conducted epidemiological studies can establish the likelihood that any group exposed to a contaminant are more likely to contract a certain disease, they cannot identify the individual case. The link between compensation and prevention was explored in two papers presented at a recent workshop held in Washington DC. Cheek argued the case for proposed legislation that:

... would encourage both insurers and self-insured employers to undertake clinical and epidemiological studies of exposed worker populations to determine what is, and equally important, what is not dangerous to workers health.⁶⁶

Cheek after further discussing compensation implications then went on to assert:

... the medicoscientific and procedural framework within which the Risk Assessment Board would operate would enable the Board, over time, to establish a rational basis not only for preventing occupational disease, but also for determining, for compensation purposes, what conditions do or do not increase the risk of occupational disease.⁶⁷

In a companion article Ozonoff advocates wider use of the clinical diagnosis rather than requiring an epidemiologic standard of proof believing that the latter approach will:

64 Barth & Hunt (1982) 249.

65 Barth, P S, & Hunt, H A, *Workers' Compensation and Work-related Illness and Disease*, (1982) Cambridge MA: MIT Press, 249.

66 Cheek III, L, *Legal vs Medical Criteria for Determining Causation in Occupational Disease Claims*, (1989) 572 *Annals of the New York Academy of Sciences* 17-22, 21.

67 Cheek (1988) 21.

... essentially foreclose on the ability of many truly injured workers to recover any damages. The result will be to remove what apparently is one of the more potent driving forces behind workplace preventive measures.⁶⁸

Regrettably one could well question the extent to which that "driving force" exists. This is discussed later in #11.9.

At the concluding session of the same conference Tuminaro after referring to likely increases in costs that would follow compensation reforms concluded:

... it seems reasonable to infer that increases in compensation costs will provide real visibility to the problem and provide a stimulus to employers and society to undertake serious efforts at improving health and safety in the workplace. To suggest that we cannot afford reforms of the system fails to consider that we already bear the losses associated with occupational exposures and illness, and the real issue, as Barth notes, is "who will suffer the direct and immediate burden for them." It is unjust for workers and their families to suffer the twin failures of our present legal regime either to prevent illness or to compensate sick workers.⁶⁹

10.11 THE NEW ZEALAND EXPERIENCE AND FUTURE NEEDS

Even with practical experience of working in the field of accident insurance and prevention ranging over many years, it is difficult to recall any actual example of preventive action being taken following a claim for a work-related disease. Penalties imposed on employers by the Workers' Compensation Board pursuant to s 95 of the Workers' Compensation Act 1956 in recognition of a poor claims experience usually, though not always, stirred up some positive action on the part of the employer concerned. During the time that practice was followed the number of disease claims, if any, would have been minimal and completely eclipsed by those for traumatic injury. The only influence compensation aspects could have had on prevention was an entirely negative one owing to the absence of such claims in any significant number. Clearly if the standard of proof required to establish a valid claim for a work-related disease claim precluded many such claims being successful then any possibility of inducing preventive

68 Ozonoff, D, Medical and Legal Causation, (1989) 572 *Annals of the New York Academy of Sciences*, 23-26, 25.

69 Tuminaro, D J, Restructuring Workers' Compensation to Prevent Occupational Disease, (1989) 572 *Annals of the New York Academy of Sciences*, 286-290, 289.

action was lost. The long period of latency for diseases such as those associated with exposure to asbestos and the lack of knowledge about many work-related diseases would have compounded the issue here as elsewhere.

The experience of the firefighters involved in the ICI warehouse fire with their compensation claims would indicate that, as suggested on p 182, the stance taken by ACC was too rigid. That poses the question as to how many less publicized claims have been refused for lack of sufficient proof thereby also removing any opportunity to initiate preventive action. Only now are strenuous efforts being made to deal with the problems of asbestos. Other diseases, not yet recognised, may also have set their time clock ticking. Whether we agree or not, one thing is sure, there is no certainty.

More determined efforts should be made by ACC to educate its staff so they may be able to act more objectively to assist potential claimants to establish whether their condition is work-related or not. In addition there is considerable room for improvement in the gathering and coding of data for statistical purposes. Nevertheless on the basis of our present knowledge it would seem that one should look beyond compensation aspects if effective preventive measures are to be more successful; after all preventive action based on claims data, is action after the event. Effective prevention is action before the event.

It is axiomatic that ACC must be diligent to see that compensation is only paid where there is liability under the Act, even accepting that this will occasionally involve delays in payment. At the same time it is submitted that an organisation like ACC should likewise be zealous to ensure that claims should not be declined without good cause. In the case of occupational diseases, this will often involve assisting the claimants by ensuring that all technical, medical and other information is made available.

It is only a matter of time when the special provision accorded victims of work-related injury and disease will be abolished. This was proposed by the Minister of Finance in his 1989 Budget speech but the original concept had both practical difficulties and would not have met the needs for work-related injuries and diseases.⁷⁰ That time will probably not come until Government is in a position to bring sickness benefits more into line with Accident Compensation. When this eventuates it will no longer be necessary to prove that a disease is work-related. This could mean that unless other measures are established preventive measures may not be taken. However with a growing concern for the effect of

⁷⁰ Caygill, Hon D, *Securing Economic Recovery: Budget Speech*, (1989) Wellington: House of Representatives, 12.

modern technology on both the environment and the population, the institution of adequate public health measures will become even more necessary. This emphasises the need for a National Institute of Public Health as advocated in #4.14. The need for adequate control also leads logically to a more detailed examination of the whole subject of deterrence and sanctions in particular.

CHAPTER 11

DETERRENCE

11.1 THE NATURE OF SANCTIONS

While the need for standards to be spelt out in some detail in statutes, regulations and codes of practice has been widely accepted, the means by which those standards are enforced is a matter on which differing opinions are held. These widely varying views focus not only on the need for sanctions but also on the appropriateness and the effectiveness of possible measures. Penalties are usually prescribed in the relevant legislation and even where the prescribed maxima may be quite high, the imposition of a maximum penalty is comparatively rare. The size of a penalty imposed is often determined more by the extent of the injury than the nature or seriousness of the offence. Again even in fatal cases the arena where the negligent act took place can effect the nature of the penalty. There are, however, many aspects to this problem.

In a novel approach Ison contrasts the position of two employers (A and B) both of whom set out to dig a 3m deep trench in sandy country. Though each trench has vertical sides, no shoring is provided and in each case there is an earth fall. In A's case a worker is killed leaving a wife and three children but with B, there is no injury. A is the subject of considerable condemnation and is prosecuted. In B's case no action follows. In contrasting the need for sanctions in these two cases Ison comments:

Which of those two employers is more likely to repeat behaviour of that kind? If A has any humanity in him at all, it is surely least likely to be A. To punish A in these circumstances might seem like shutting the stable door after the horse has bolted. But unless sanctions are invoked, nothing has happened to change the behaviour patterns of B. Of these two employers, it is surely B who is most likely to see no harm in what he has done, and surely B who is more likely to continue the same course of hazardous behaviour in the future if no action is taken. If sanctions are to be used effectively for preventive purposes, there is surely a greater need that they be applied to B than to A.

In other words, the success of any enforcement program will depend largely on the extent to which it can invoke sanctions for preventive purposes rather than having them used only as an act of retribution after the event.¹

Another Canadian view is to be found in a report prepared for the Royal Commission on Matters of Health and Safety Arising from the Use of Asbestos in Ontario where the question of prosecutions and enforcement is discussed:

It is our view that in the long-run democratic context of regulation, prosecutions and penalties are the least likely way to secure sustained desired changes in behaviour if they are the primary focus for change. In this sense the preference of Ontario regulators to use persuasion and bargaining is both understandable and desirable. There can be little doubt, however, that the tendency of Ontario regulators ... to view prosecutions as an indicator of regulatory failure is overdone and is an important source of the view held by some groups, particularly labour unions, that the law is not being applied fairly. Visible prosecutions where they are clearly warranted can also reduce the need for more inspectors since people will change their behaviour in anticipation of such coercive consequences.²

As would be expected the Robens Report devoted considerable discussion to this topic and the following comment is in point:

... inspectors value the threat of possible prosecution as a potent sanction, and that they attach importance to the deterrent effect of the adverse publicity which prosecutions frequently attract. Nevertheless, the weight of evidence points to the conclusion that the lengthy process of investigation, warning, institution of criminal proceedings, conviction and ultimate fine is not a very effective way of producing an early remedy for known unsatisfactory conditions. In sum, we do not believe that the traditional sanction commands any very widespread degree of respect or confidence in this field. Why is this?³

The report goes on to question the appropriateness of the criminal law to deal with infringements, stating that:

1 Ison, T G, *Re the Uses and Limitations of Sanctions in Industrial Health and Safety*, (1975) 2 *Workers' Compensation Reporter* 203-216, 204.

2 Doern, G.B., Prince, M. & McNaughton, G. *Living with Contradictions: Health and Safety Regulation in Ontario* (1982) Toronto: Royal Commission on Matters of Health and Safety Arising from the Use of Asbestos in Ontario, 5.15.

3 Committee on Safety and Health at Work, *Safety and Health at Work: Report of the Committee*, (1972) Cmnd 5072, London: HMSO, 7, (The Robens Report), 81.

... few arise from reckless indifference to the possibility of causing injury ... The typical infringement or combination of infringements arises rather through carelessness, oversight, lack of knowledge or means, inadequate supervision or sheer inefficiency.⁴

After referring to the irrelevance of criminal proceedings in many such cases the report went on:

We recommend that criminal proceedings should, as a matter of policy, be instituted only for infringements of a type where the imposition of exemplary punishment would be generally expected and supported by the public. We mean by this offences of a flagrant, wilful or reckless nature which either have or could have resulted in serious injury.⁵

Administrative sanctions such as improvement or prohibition notices were recommended for the run-of-the-mill offences where "advice and persuasion fails or pressure is necessary." Mention was also made too of the type of penalties applied by the Workers' Compensation Board of Ontario as discussed in #11.9.

In their report on the Accident Compensation scheme the Law Commission after referring to various ways in which greater preventive action could be encouraged recommended:

... that instead [of penalties and bonuses] consideration be given to creating a power to impose penalties on employers and the self-employed by reference to observed conditions.⁶

This approach is similar to that of the Workers' Compensation Board of British Columbia referred to on p 209.

In his commentary on the New Zealand Accident Compensation scheme with respect to occupational health and safety, Ison could well be reflecting his experience when he was Chairman of the Workers' Compensation Board of British Columbia.⁷ He recommends that the education and enforcement roles be combined in the one organisation. Furthermore that it be recognised that:

Occupational health and safety requires a specialised staff separate from those who administer employment standards. Inspectors will never be able to develop a specialised knowledge of occupational health and safety and to concentrate sufficiently on that area if they are required to inspect for compliance with agreements and legislation relating to wages and other terms of employment.⁸

4 Robens (1972) 82

5 Robens (1972) 82.

6 Law Commission, *Prevention and Recovery: Report on the Accident Compensation Scheme, Report No 4*, (1988) Wellington: Law Commission, 39.

7 Ison, *Accident Compensation: A Commentary on the New Zealand Scheme*, (1980) London: Croom Helm.

8 Ison, (1980) 176.

He also considered that the Department of Health which tends to be treatment oriented should not be responsible for occupational health. However though much has changed in New Zealand since these views were published, the emphasis today is even more heavily on curative medicine. However the duties of the Labour Department inspectors have been redefined.

We are thus still left with a variety of views. In so far as prosecutions are concerned, it is clear that the rather onerous procedure they involve is a considerable detraction but when such measures as improvement and prohibition notices fail, then clearly some other remedy is needed. The answer may well lie in the adoption of a less onerous procedure as in British Columbia or the United States.

11.2 THE LEVEL OF PENALTIES

A near universal complaint about penalties is the low level of those that are imposed. In many cases costs saved from a failure to comply may far outweigh any fine that is or even can be imposed. As Viscusi commented with respect to the position in the United States after referring to the substantial contraction in the number of inspections being carried out in recent years during the Reagan regime:

It is OSHA inspections, rather than penalties, that appear to be most instrumental in encouraging compliance. If the cost of individual penalties were boosted by a factor of 100 or more, however, OSHA's penalties would become a significant enforcement factor.⁹

As Gleason and Barnum comment after concluding that "the current sanctions antagonize employers who attempt to obey the law":

... [penalties] should be set high enough to accomplish their purpose. To achieve this purpose, the expected cost of sanction must be set to be greater than the opportunity cost of compliance if economically rational employers are to be motivated to correct the violations.¹⁰

Certainly it is difficult to overlook the many complaints that are voiced from time to time at the low level of penalties imposed on substantial employers after some tragic event. However there are indications in the United States as mentioned on p 113 that the policy is changing. However there is a great deal of fragmentation in the United States given the pre-eminence of state occupational health and safety laws in many states and the wide variation in state politics. Even the Federal OSHA has changed

9 Viscusi, W K The Structure and Enforcement of Job Safety Regulation, (1986) 73 *Law & Contemporary Problems* 127-150, 149.

10 Gleason, J M, and Barnum, D T, Effectiveness of OSHA Sanctions in influencing employer behaviour: Single and Multi-period Decision Models, (1978) 10 *Accident Prevention and Analysis* 35-49, 49.

directions under differing administrations reflecting political considerations rather than a desire to make workplaces safer and healthier. The Reagan desire, if not obsession, with deregulation has made OSHA's task far from easy.

11.3 RETRIBUTION OR DETERRENCE

Where drastic measures have followed a disaster about which there has often been a public outcry, the traditional response has been more in the nature of a call for retribution rather than to establish a deterrent. Deterrence is surely the prime objective of occupational health and safety legislation. In general it is usual for any sanction to be influenced by the outcome of the wrongful action but some consideration should be given to the views of Ison expressed above in #11.1. As the Woodhouse Report pointed out: "reprehensible conduct can be followed by feather blows while a moment's inadvertence could call down the heavens."¹¹ Often there is little relation between the degree of negligence and the extent of the injury but traditionally the severity of sentences passed by the courts have been influenced as much by the outcome as the action itself. As Abel puts it: "because punishment is a function of harm caused, it is either too severe or too lenient."¹² What is needed is deterrence before the event as suggested by the Law Commission and referred to on p 120. Clearly the penalties provided in the legislation must be substantial and those in the Occupational Safety and Health Bill 1990 are a considerable increase on the current ones. Ison's view also has to be considered, for it raises another question that is, whether any penalty imposed should vary in accordance with the seriousness of the injury incurred, rather than the nature of the offence.

11.4 TORT LAW AND DETERRENCE

In the past and even today much has been made of the deterrent effect of tort action, indeed some of the critics of the New Zealand Accident Compensation legislation maintain that, as employers, manufacturers, motorists and others no longer face the threat of a common law action following any negligent conduct or action, they are less inclined to act with due care. Such an assertion assumes that in the past the possibility of a tort action ensured that the conduct of everyone was more circumspect but that was certainly not the case. The reality is however, that insurance has meant that employers, motorists, etc, all share the cost of any negligence claims against them with others in the same insurance classification and this aspect has been intensified in recent years with the advent of compulsory insurance.

¹¹ *Compensation for Personal Injury in New Zealand: Report of the Royal Commission of Inquiry*, (1967) Wellington: Govt Printer. 49.

¹² Abel, R L, A Critique of Torts, (1990) 37 *U C L A Law Review*, 785-831, 791.

Furthermore other forms of deterrence still remain such as deductibles on insurance claims (excesses or franchises), criminal prosecutions, increased insurance premiums for any property cover as well as the considerable uninsured costs that may ensue, etc. Additionally there has been the substantial upsurge in accident prevention activity and campaigns. However there is no documented or other evidence to support the assertion that safety standards have slipped in New Zealand since the introduction of Accident Compensation in 1974. Any endeavour to prove or disprove this would be fraught with difficulty as in the intervening years many other influences have been introduced and existing ones changed. One could cite the considerable growth of occupational health and safety education and training for example to say nothing of changes in technology, production methods, and employment generally even though the former has been somewhat curtailed in recent years. In view of the importance of this topic it is logical to examine some of the principles involved in this argument.

Firstly one must ask what was the value of tort law as a deterrent? In the United States the legal profession especially the trial lawyers' bar is largely convinced that it is only through the operation of the tort law that preventive measures will be truly encouraged and strengthened, especially in the area of work and traffic accidents and product liability. However, as they are considerably and often exclusively involved in that aspect of legal practice, their views can scarcely be unbiased. Schroeder, with special reference to disease claims, refutes the argument that:

... tort claims should be retained because of their value in deterring wrongdoing. The fallacy of this position is that there is little deterrence in the area of toxic substances. Since many occupational disease claims have long latency periods, and the tendency of companies to discount future probabilities will cause them to do little to prevent future illness. Those who make decisions on preventive spending probably will no longer be employed by the company when the harm appears and claims are filed years later.¹³

Furthermore in the United States until the advent of the Occupational Safety and Health Act of 1970 in many states there was not the same safety legislation and enforcement that has prevailed for many years in those countries that follow the British tradition.

Clearly the primary objective of tort law, as indeed it is of Accident Compensation, is to compensate a victim for injury suffered. To the extent that we require any compensation law to perform a secondary function -- that of deterring -- then it is being asked to achieve an objective for which it was not primarily intended. This is not to say that a secondary objective cannot be achieved but it remains secondary to the main objective. As Atiyah commented:

¹³ Schroeder, E P, *Legislative and Judicial Responses to the Inadequacy of Compensation for Industrial Disease*, (1986) 49 *Law & Contemporary Problems* 151-182, 172.

If we could find a compensation system which served the purposes of compensation well while at the same time it provided a deterrence ... we would embrace it with enthusiasm. But if we try to achieve these two different objectives -- compensation and deterrence -- by one regime, we may well end up with worst of all possible worlds.¹⁴

As Abel pertinently commented: "[i]ndeed if insurance perfectly transmitted liability costs to insureds, much of its *raison d'être* would disappear."¹⁵

Again the degree of sanction which the tort law invokes is dependent on the extent of the injury, not the degree of negligence. Then there is the unevenness of court and/or jury decisions where it is known or believed that an insurance company stands behind the defendant.

It is in the United States where the value of common law liability as a deterrent has been most strenuously promoted, especially in the area of product liability. Yet Calabresi states:

But what of those accident costs whose avoidance, whether by injurers or victims, is clearly worthwhile? What of those occasions in which there is general agreement with the regulators' decisions that prevention should have occurred or that the dangerous act was not worth doing? The answer is that even in those cases the fault system does not function as well as would a system of noninsurable civil or criminal fines, imposed regardless of the individual accident costs, the reason is obvious: The fault system regulators do not coerce compliance with their decision once they decide that prevention is worthwhile. They rely instead on attaching an incentive, viz, "the costs of such accidents," to the class which "should" prevent them. But this unnecessarily opens up the possibility of error on the part of that class in gauging whether compliance is, in fact, worthwhile. To some extent, a decision on whether to comply is always a matter of choice on the part of the people society is trying to coerce. Yet who can seriously assert that the most effective way of preventing behaviour that we have collectively decided to prohibit is to charge the actor's insurance company for the damages that behaviour *happens* to cause? Thus, the fault system is far too tentative in enforcing those very judgements between prevention and accident costs which its regulators are reasonably sure are correct.¹⁶

Stapleton in discussing tort action and deterrence with respect to disease claims concludes:

14 Atiyah, P.S. *Accidents, Compensation and the Law*, (1980) London: Weidenfeld & Nicolson, 556.

15 Abel (1990) 812.

16 Calabresi, G, Optimal Deterrence and Accidents, (1975) 84 *Yale Law Journal*, 656-671, 670.

In short, arguments in defence of tort based on the deterrent potential of its attendant publicity seem ultimately unconvincing.¹⁷

Ison in his seminal work sums up:

... although the value of tort liability as a deterrent against unsafe conduct, or as an incentive to care, varies ... and is extremely difficult to evaluate, it is thought on the whole to be negligible.¹⁸

Another aspect is that any incentive that there may be under a common law system for the injurer, may lie rather in the direction of seeking to avoid conduct that may be regarded as negligent, as opposed to avoiding conduct that was potentially injury producing but which at the same time may not be regarded as negligent. Another possibility is as Abel puts it: "[f]urthermore, the threat of damages encourages entrepreneurs to minimize liability, not accident costs."¹⁹

11.5 OTHER APPROACHES TO DETERRENCE: MARKET FORCES

In the United States, in particular there has been considerable emphasis by economists on the role that market forces could play in supplementing or even replacing regulation. Atiyah explains:

One reason why Americans rely so much on economic constraints as regulators of conduct is that they have been so much more free of other restraints. In this country, [Great Britain] control and regulation of activities which are dangerous to life and limb have long been provided for by the statutes.²⁰

Nevertheless in keeping with the spirit of the times it is necessary to consider the possibility of alternative strategies, one of which undoubtedly is that of letting market forces determine the trend of events. Typical of the attention given to this aspect may be found in a report of the New Zealand Business Roundtable on the ACOSH proposals previously discussed. The Roundtable emphasized the need for the freeing up of the labour market and facilitating greater communication between employers and workers at the workplace level. While one cannot but commend greater communication within industry, it is rather a different matter when it is a question of negotiation. For such a view also assumes

17 Stapleton, J, *Disease and the Compensation Debate*, (1986) Oxford: Clarendon, 121.

18 Ison, T G, *The Forensic Lottery*, (1967) London: Staples Press, 89.

19 Abel (1990) 814.

20 Atiyah, P S, & Cane, P, *Atiyah's Accidents, Compensation and the Law*, 4th Ed, (1987) London: Weidenfeld & Nicolson, 540.

that workers and employers are both equally well informed and able to negotiate on even terms in all workplaces both large and small and whether or not the workers have the backing of a well organised and adequately resourced union. Many would disagree. The comments made under the heading of "The Right to Know" #9.7 are relevant to this discussion.

Many factors have to be studied in a consideration of any trade-offs, including such impanderables as the value of a human life. One has not only to consider the possible effect of economic factors on management but also on labour. Clearly, today the state of the economy, the availability of both jobs and labour, would be quite different from the situation which existed in more affluent times. Furthermore it is suggested that much of the overseas research and other comments may have more limited relevance to New Zealand, than that on other aspects of occupational health and safety, though clearly there is much that will apply. For example as Doern comments on the Canadian scene:

Liberal democratic market economies tend overwhelmingly to accord to private corporations the primary opportunities to introduce new products and substances, and hence new hazards, to the workplace and the market place. The technologies on which they are based are not entirely unregulated. The common law and the criminal law imposes (sic) certain restraints on the process of product development and innovation. Beyond these initial constraints there exists a vast range of unfettered, or less fettered, territory with which the state may or may not intervene, and unions or other parties may or may not bargain.²¹

For market influences to have the maximum effect both management and labour must be fully informed as to hazard potential; a state of affairs that is seldom likely. Not only would most workers be inadequately informed but so too, are many managements, especially in small organisations. Though both parties, especially management, may have a considerable knowledge of the potential hazards, they would be much less likely to be able to assess the risk that those hazards pose.

There are some economists who contend that there must be a certain equilibrium between a worker's perception of hazard and his or her demand for a wage differential, as compensation for exposure to the work hazards.²² Such a view is based on the theory that higher wage demands for risk will cause an employer to increase the resources allocated to health and safety. This assumes not only that workers and employers are sufficiently informed and also that there is sufficient flexibility in the labour market but also that workers have the ability to move from place to place to seek suitable employment.

21 Doern, G B, *The Political Economy of Regulation Occupational Health* the Ham and Beaudry Reports, (1977) 20 *Canadian Public Administration*, 1-35, 16.

22 Viscusi (1983) Ch 3.

Management, on their part, faced with the prospect of paying increased wages, will be forced to consider whether it may be more economic to reduce the risk and so lessen the wage premium. Nevertheless should the economics of the situation be such that management finds it more advantageous to pay the higher wages, that would be most undesirable. Thus most workers in such a situation spared serious injury or even death, would have received extra remuneration over time. However the unfortunate, who because of that heightened risk suffers a serious injury or even death, will have received no more of that extra remuneration than the more fortunate workmates.

Some time before the advent of Accident Compensation, the union covering employees of electrical supply authorities sought extra pay because of the risk their members faced. However the upshot was a realisation that the greatest need for the extra remuneration was not for those who remained injury-free but the seriously injured and the dependants of those who may be killed. Rather than everyone receiving that extra "risk money," a pool was created to enable extra compensation to be paid to those seriously injured or to the dependents of deceased workers.

Coase put forward a proposition that has been popularly termed the Coase Theorem which is concerned with the respective rights of the parties where the activities of one party create a nuisance for another party. In some cases it will be possible for each party to forgo some of their rights so as to reach an equilibrium where the optimal position is attained, in other words each party yields the least possible ground but at the same time they jointly attain the greatest benefit to their mutual satisfaction. If the parties are free to bargain with each other they would arrive at that point without any intervention.²³ Freedom to bargain envisages that each party is fully informed of all facts and that there are no transaction costs. Applied to the workplace, the optimal position would be where the combined total of the cost of injury and disease prevented plus the cost of the preventive measures would at its optimally lowest point. (Refer Figure 2) In other words, that point where any increase in preventive measures would not be matched by the injury and disease costs saved.

Deweese made an interesting study of what he termed "a world-class occupational health disaster," the asbestos-cement pipe plant of Johns-Manville in Scarborough, Ontario.²⁴ He endeavoured to estimate the effect of applying knowledge gained after the plant opened in 1948 as if that knowledge then existed. This was undertaken at 2 levels using knowledge available in the mid-60s and mid-70s. He then determined the appropriate action a profit-maximizing company would have taken at the outset. His results indicated:

²³ Coase, R H The Problem of Social Cost, (1960) 3 *Journal of Law and Economics*, 1-44.

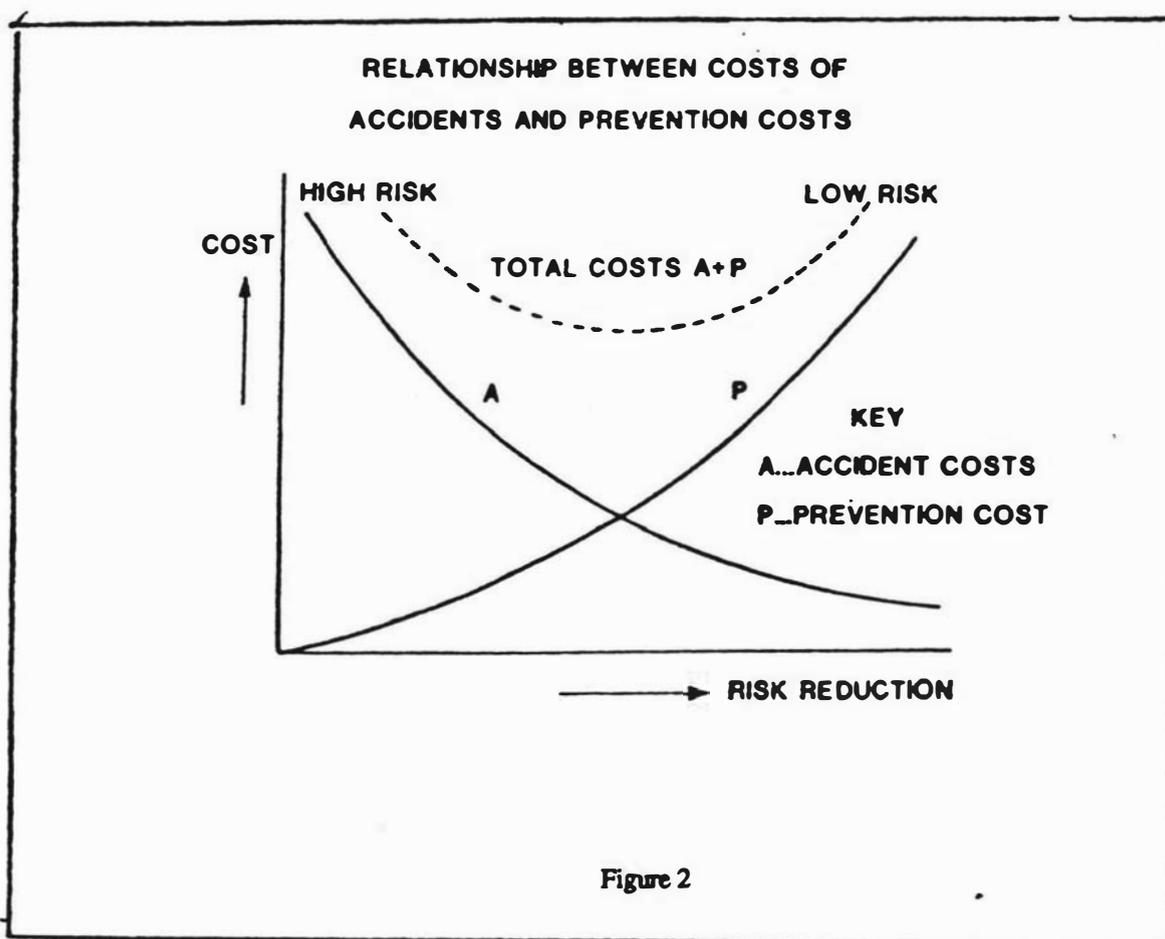
²⁴ Deweese, D N, Economic incentives for controlling industrial disease, (1986) 15 *Journal of Legal Studies*, 289-319, 317.

... the value-maximizing choice for this plant, using a liability for disease based on workers' compensation payments or tort awards and either level of knowledge, is generally the degree of control that actually occurred -- the Base Scenario.²⁵

And later:

Even though these awards underestimate the social value of life, they represent a considerable sum of money. However the results show clearly that even full risk rating of workers' compensation assessments does not create substantial incentives for reducing worker risks.

He concludes that the optimal control would require the "firm's liability to exceed compensation benefits," though he is not clear how this could be done and that "[t]he design of practical solutions must await further research."²⁶



²⁵ Dewees (1986) 917.

²⁶ Dewees (1986) 319.

Clearly in the workplace situation where costs fall on the employer and the benefits are mostly gained by the workforce, difficulties arise even leaving aside the largely impossible task of estimating the expected benefits that may stem from any countermeasure. Certainly the workforce would not be sufficiently informed about the hazards they may face and the probability and possible extent of any harm they may incur. It is also likely that they may not be in a strong enough bargaining position and be more concerned with security of employment.

This principle would assume considerable importance should any thought be given to a reduction in any of the existing preventive strategies and greater reliance be placed on negotiations between the parties directly involved rather than intervention by the state, as is envisaged by the Employment Contracts Act 1991. Then there is the possibility of varying an individual employer's levy to ACC in accordance with his or her accident and work-related disease record referred to later in #11.9.

One researcher who has studied this subject in some depth is Viscusi whose major work is entitled *Risk by Choice*.²⁷ He points out that the principles involved are long-standing dating from Adam Smith's *The Wealth of Nations*. In an earlier work he examined the relationship between job hazards and workers quit rates where he concluded "that workers should be more likely to quit jobs that pose health and safety risks."²⁸ In the work referred to above he states:

The average total length of employment in a hazardous firm tends to be less if workers quit more often, so more hazardous enterprises tend to have less experienced workforces. ... Since firms have a substantial investment in the training of experienced workers, they attempt to hold down these costs by assigning inexperienced workers to hazardous positions, as was the case with B. F. Goodrich Company, where the polyvinyl chloride exposures were greatest of those at entry-level positions.²⁹

After mentioning that it is the common belief that workers are more aware of safety risks than health risks, Viscusi comments:

... such sweeping statements are not borne out by the responses of workers ... Although many health risks, such as those posed by the bewildering array of toxic substances, are difficult to assess precisely, nevertheless workers appear to be aware of many important

27 Viscusi, W K *Risk by Choice: Regulating Health and Safety in the Workplace* (1983) Cambridge MA: Harvard UP.

28 Viscusi, W K, Job hazards and Worker Quit Rates: An Analysis of Adaptive Worker Behaviour, (1979) 20 *International Economic Review* 29-58, 54.

29 Viscusi (1983) 67-8.

health-related concerns.³⁰

Notwithstanding Viscusi's extensive research carried over a number of years, much of which would be in more prosperous times, it is doubtful whether all his conclusions would be applicable in New Zealand today. Some consideration must also be given to the effect of a depressed economy as witness the comments of Glendon and Booth with respect to the current British scene quoted on p 152.

Though there will obviously be a limit to the information individual workers may possess, the role that unions may play has also to be considered. Their activity in this field has increased substantially in recent years. With the rapid development of computerized data bases a great deal of detailed information is readily available but the cost of getting that material is not inconsiderable. Furthermore, in many cases it does require a suitably qualified person to interpret and apply much of it.

The view expressed by Mendeloff as quoted on p 156 is also in point. Then there is also the possibility that unions can supplement any perceived deficiencies in any regulations during award negotiations. However commenting on the lack of action in that direction in the United States, Schroeder and Shapiro point out that, generally, unions do not have the technical and financial resources necessary to determine hazardous exposure levels or to monitor compliance with any agreement reached with an employer.³¹ Unfortunately in New Zealand the Employment Contracts Act 1991 will likely worsen the situation with a considerable restriction on the union's ability to act. For example union officials no longer have a right to enter an employer's premises.

After referring to the leisurely pace at which OSHA has proceeded and the many law suits opposing regulation that have been instituted by employer interests about which the same authors comment:

Market and regulatory responses to occupational disease appear to have failed. Available evidence suggests that workers have not received significant wage premiums in the labor market. Somewhat better evidence establishes that workers have not collected workers' compensation or tort recoveries as *ex post* compensation. OSHA intended as a vehicle to prevent occupational disease and therefore to reduce the need for *ex post* compensation, has failed to act on most of the workplace hazards that need attention.³²

And finally: "The lack of information is a key element in the failure of markets and regulation to prevent occupational disease."³³

30 Viscusi (1983) 62.

31 Schroeder, E P, & Shapiro, S A, Responses to Occupational Disease: The Role of Markets, Regulation, and Information, (1983-1984) 72 *Georgetown Law Journal*, 1231-1309, 1243.

32 Schroeder & Shapiro, (1983-84) 1263.

33 Schroeder & Shapiro, (1983-84) 1264.

There is perhaps another way in which market forces should be considered. Most of the discussion has centred around the respective positions of employers and workers but should not the consumers also be considered? One could question the right of the consumer to demand a lower priced article or service which can only be provided at that low cost, if fellow citizens face a higher degree of risk. This is allied with "community responsibility" one of the five principles on which the Woodhouse Report was based.³⁴ One could also well reflect on the Rev Waddell's Sermon 100 years ago on the "The Sin of Cheapness" referred to on p 14.

One suggestion of particular interest to New Zealand is that of Pierce.³⁵ Pierce examines the efficacy of both market forces and tort law in furthering occupational health and safety and finds them wanting, proposing the setting up of an agency called the Safety Enhancement and Compensation Agency (SECA):

SECA would both compensate victims of accidents and regulate safety in all areas of the economy. In performing its compensation role, it would share many characteristics of the Accident Compensation Boards now functioning in New Zealand and proposed in Australia.³⁶

His concluding comments are also of particular interest:

The proposal made in this Article is not likely to garner immediate support from any quarter. It may be characterized accurately as a the kind of attempt at major social and economic engineering that the legal system has proven unable to implement in many other contexts. Yet, I would not prescribe such a major revamping of the legal system's methods of controlling safety if I did not find the underlying ailment both chronic and potentially fatal. For a variety of reasons, the market alone is no longer capable of effectively encouraging safety in a large and growing number of areas. Tort law has proven an abysmal failure at accomplishing its putative goals. Furthermore, the market and tort law will become even more ineffective as social, economic, and scientific relationships grow more complex and the nation embarks on other experiments in social engineering, such as national health insurance. If the present situation is permitted to evolve naturally, the inevitable result will be total externalization of accident costs. When combined with a justifiable desire to decrease accident costs, this complete externalization, in turn, will force total reliance upon

34 Woodhouse Report (1967) 20.

35 Pierce Jr, R J, Encouraging Safety: The Limits of Tort Law and Government Regulation, (1980) 33 *Vanderbilt Law Review*, 1281-1331.

36 Pierce, (1980) 1320.

direct safety regulation. Even the more extreme advocates of deregulation and recourse to market forces still acknowledge the need for a modest degree of regulation.³⁷

11.6 THE CALL FOR DEREGULATION

The call for more deregulation has been perhaps strongest in the United States though in Great Britain there have been similar demands especially under the influence of the Thatcher regime. A new philosophy was put forward in two White Papers in 1985 and 1986.^{38,39} The first White Paper suggested the raising of safety policy thresholds and other measures to assist small employers cope with the legislation such as emphasising their right to question inspectors' decisions. The second White Paper reported progress with changes and also proposed a systematic reviewing of existing regulations to establish where the 'burdens' really lay. However to some extent the enquiry backfired as:

... [r]elatively few of the smaller employers consulted found the cost of compliance with health and safety regulations to be a significant burden.⁴⁰

As Dawson *et al* comment with respect to the American scene:

Weidenbaum (1981) argues that regulation imposes too great a burden on industry which works to the detriment of all parties in terms of higher taxes, higher prices, job losses, bankruptcy and restrictions on big businesses so that their resources are diverted from their main and socially most desirable tasks of production, distribution and sale of goods and services. Little attention is paid to the rising accident rate, or to the issue of where these costs are likely to fall.⁴¹

The authors then stress the need for all parties in a deregulated market to "have access to expert knowledge."

The legislative changes that have taken place as outlined above have not been the only developments of importance. In most countries and especially in the United States, there has evolved a substantial groundswell of opinion favouring considerable deregulation. Wilson (1985) suggests that, with regulation, there are two separate forms. His first type is regulation which enables industry to charge

37 Pierce, (1983-84) 1331.

38 *Lifting the Burden*, (1985) Cmnd 9571 London: HMSO.

39 *Building Businesses, Not Barriers*, Cmnd 9794, (1986) London: HMSO.

40 *Building Businesses* (1986) 37.

41 Dawson, S, Willman, P, Clinton, A & Bamford, M, *Safety at Work: the Limits of Self-regulation*, (1988) Cambridge: Cambridge *et al*, 256.

higher prices than would prevail in a free market, such as the previous regulation of the domestic airlines in the United States. The second, which he calls social regulation, attempts to control social costs such as pollution, accidents, etc. Wilson points out that deregulation in the first group, which results in mostly lower prices tends to be very popular though with some disadvantages. His thesis is that there is a blurring of the issues, with the odium that the first type of regulation has incurred being visited upon the second type. He contends:

Attempts to encourage linked discussion of what are in fact two quite different forms of regulation have been encouraged by conservative commentators anxious to show that regulation in all its forms is inferior to a free market system. Thus safety and health policy has been caught up in a much more general debate on regulation.⁴²

Therein lies the problem with a great deal of the rather loosely argued statements that are all too often given more credence than is their due.

11.7 EFFECT OF AWARDS

The fact that the earnings of so many in New Zealand are presently fixed by awards or other forms of bargaining could be a limiting factor to market forces though much may now be changing. That assumes that health and safety factors play little or no part in that process. Some years ago there was a "dirt money" complex when it was considered preferable to receive extra remuneration rather than have conditions improved; but fortunately today wiser counsels prevail. This is a growing trend as can be seen in a schedule compiled by the Council of Trade Unions with the financial assistance of the ACC which lists many such agreements.⁴³ However a perusal of those provisions suggests that they are not particularly significant. Unfortunately the advent of the Employment Contracts Act 1991 casts a rather ominous shadow over this once promising development. While it would be highly desirable for employers and workers to negotiate mutually satisfactory approaches to occupational health and safety amplifying the statutory provisions and reflecting individual circumstances, this is hardly likely as suggested earlier at p 153.

11.8 THE POSSIBILITY OF A RESUMPTION OF TORT LIABILITY

The suggestion from the Business Roundtable that there be some form of return to tort liability will be a surprise to many but it is possibly no more than a reflection of their determination to see the

⁴² Wilson, G K, *The Politics of Safety and Health: Occupational Safety and Health in the United States and Britain*, (1985) Oxford: Clarendon Press, 20.

⁴³ New Zealand Council of Trade Unions, *Health & Safety Clauses in Private and Public Sector Documents* (1989) Wellington: CTU.

Accident Compensation scheme if not demolished, completely revised.⁴⁴ In view of the extent to which this issue has been canvassed over the last 25 years and the lack of any real desire to see such a move, it seems unnecessary to comment further.

The Roundtable is not alone in suggesting modifications, a visiting American academic proposed wide changes.⁴⁵ Miller proceeds on the grounds that, the introduction of Accident Compensation and the removal of the tort action, has led to the failure of any general deterrence of accidents leading to an increase in accidents and the accident rate. Miller maintains that the benefits of a tort supplement to Accident Compensation:

... would be, first, to rekindle the motivation to take concrete steps for the safety of others ... -- whether through fear of a law suit, a desire to avoid an increase in liability insurance premiums, or through widespread reassimilation of the norms of tort law -- which has fled the consciousness of New Zealanders under Compo and second, to reduce the incidence of unsafe activities through general deterrence produced by directing accident costs toward the activities which caused them.⁴⁶

This despite a complete lack of any evidence of an increase in the accident rate. At the time that Miller spent in New Zealand, ACC had been suffering a cost blowout following an unwise reduction in levies. Many commentators at that time assumed from increases in cost, increases in incidence. Miller cites many cases of hazardous situations as evidence, though he would have been unaware that similar conditions existed prior to the advent of Accident Compensation.

Another possibility has been posed by three authors.⁴⁷ In brief they propose that ACC should have a right of subrogation. If a tortfeasor offers within 90 days to reimburse ACC the cost of its outgoings, there would be no further pursuit of a tort claim either by ACC or the victim. If there is no such response, then both ACC and the victim would have a right to take action. The advocates of this approach maintain that there will be an incentive by tortfeasors to settle for the lower ACC claim which will avoid litigation and tort liability. This will have the advantage of reducing ACC's total liability. From a claimant's point of view that seems scarcely equitable. Furthermore from an employer's stance the possibility of such actions raises the question of additional insurance cover would need to be

44 New Zealand Business Roundtable, *Review of Accident Compensation: A Submission to the Law Commission*, (1987) mimeo, Wellington.

45 Miller, R S, *The Future of new Zealand's Accident Compensation Scheme*, (1989) 11 *University of Hawaii Law Review*, 1-80.

46 Miller (1989) 71.

47 O'Connell, J, Brown, C & Vennell, M, *Reforming NZ's Reform: Accident Compensation Revisited*, (1988) *NZ Law Journal*, 399-402.

seriously considered thus negating the benefit of any reduction in ACC levies and ultimately leading to greater overall costs. As we are already learning to our cost, economic theory on market forces, user pays, etc, frequently do not match their expectations.

The current administration has already indicated that it has no intention to turn back the clock and reinstate tort liability at least in part. Furthermore it is difficult to see how there can be any return to tort liability in part only.

11.9 EXPERIENCE RATING

Many economists would argue that costs of any enterprise should be internalised in order to eliminate any distortion to the cost structure. To the extent that the true costs are shared with other enterprises through the medium of any insurance, social welfare or other such scheme, that is not being achieved. This leads many to advocate charging employers and others in a way that truly reflects their actual contribution to the total cost of the accidents and disease.

Earlier writers on safety in the workplace emphasised the part played by Workers' Compensation in imposing the cost of accidents upon the employer thus creating a considerable incentive to make the operation safer.⁴⁸ Coupled with this view has been the growth of experience or merit rating, that is, varying the individual insurance premiums in accord with the claims experience or the accident rate of the individual employer. Despite the popularly held view, especially in North America, that such schemes are very effective, there is almost no evidence to give general support to that view from the various studies that have been undertaken.⁴⁹ As Ison sums up:

Experience rating is contrary to the public interest, contrary to the interests of workers, and probably contrary to the interests of employers. The only clear benefit of experience rating is the contribution it makes to the prosperity of the professions.

48 Somers, H M & Somers, & A R, *Workmen's Compensation: Prevention, insurance and Rehabilitation of Occupational Disability*, (1954) New York: John Wiley, 228.

49 Chelius, J R & Smith, R S, Experience-Rating and Injury Prevention in *Safety and the Work Force*, Worrall, J D Ed, (1983) Ithaca NY: ILR Press, Campbell, I B, Accident Prevention Activity: Its Need and its Measurement, (1980) 6 *Control*, 131-146. Atiyah, P S Accident Premiums and Variable Premium Rates for Work-connected Accidents, (1976) 2 *Industrial Law Journal*, 1-11, 89-105. Ison, T.G. *Experience Rating: Expectations and Realities*, A paper for a conference on "Experience Rating: Incentive or Disincentive," (1986) Toronto: Corpus Occupational Health and Safety Group, Mimeo. Campbell, I B, *Experience Rating for Accident Compensation: A Necessity or Wishful Thinking*, Occasional Paper No 4, (1989) Palmerston North: Massey University. See also Dewees p 197.

The expansion of experience rating has not resulted from any research to assess the significance of what is being done. Instead, economists using nineteenth century market theory provide the ostensible justification, board actuaries and outside actuarial firms provide the charisma of 'professional' authenticity, the compensation boards provide the technology, corporate organisations provide the political clout to ensure that it happens, and the legal and medical professions apply their skills to cope with the resulting controversies.⁵⁰

Such schemes are limited in their application to the larger employers and in the United States the activities of about 85% of the employers are too small to be experience rated. Furthermore many that are experience-rated are only partially so rated. It is interesting to speculate as to why experience rating is supported almost without question in the United States despite the discouraging and, at times even adverse evidence from most empirical studies. In many of the individual states until the passing of OSHA in 1970 the enforcement of legislation as we have come to know it in the British tradition was far from being a feature of the scene. To a considerable extent the greatest influence for safety was the accident prevention advice and service that the Workers' Compensation insurance companies provided for their clients. There is no doubt that this close tie was not without its considerable influence.

In a workshop entitled Occupational Health in the 1990s: "Developing a Platform for Disease Prevention" held by the New York Academy of Sciences, one session was devoted to "Restructuring Workers' Compensation to prevent Occupational Disease." In the discussion Boden, after acknowledging that the previous day he criticised OSHA, commented:

I would like to agree with what Peter Barth and other panelists have said, namely, that the workers' compensation system is generally not where we ought to invest time and energy to prevent occupational disease. ... even in occupational injury cases, where studies have been done to identify the preventive impact of workers' compensation, no impact has been found. If in the case of occupational injury no impact is detectable, then, given all the problems of compensating occupational diseases, you really cannot expect, and maybe should not expect workers' compensation to do more than what its name suggests: to compensate workers and if we can get it to do even that, we probably have accomplished a great deal.

One final point is that both workers' compensation and the tort system are private remedies. By contrast, one of the greatest strengths of OSHA regulation is that it is public. Thus it has

50 Ison, T G, The Significance of Experience Rating, (1986) 24 *Osgoode Hall Law Journal*, 723-742, 739.

brought issues of occupational disease and injury into the public eye much more than has tort litigation. To the extent that it has had a tremendous educational effect in the United States, OSHA regulation has been very effective.⁵¹

Boden then went on to comment of the extent that occupational health had featured on TV. Regrettably in New Zealand occupational health has yet to raise a great deal of interest. Even with respect to injury, the media prefer to remind us of the extent of injury in the sports arenas rather than in the workplace where there are certainly greater opportunities for effective preventive action though admittedly the Rugby Union and some other sports authorities have acted promptly to alter the rules as a move to preventing serious injury.

When the Workers' Compensation Board of Ontario established that their experience rating scheme was not producing results, a new penalty scheme was introduced under which employers who qualified under each of three criteria were subject to a penalty of 100%. If after one year they still met the criteria the penalty was increased to 125% and thereafter an extra 25% each year until matters so improved that they no longer qualified. Differing views have even been expressed about the effectiveness of that rather more drastic scheme. Some criticism was no doubt influenced because, despite the unfavourable evidence, employers subject to those penalties could appeal. As many appeals were lodged on the strength of the new preventive measures installed, the Board took the view that it was better that such employers spend their funds improving their systems rather than merely contributing to the Board's funds.⁵²

Apart from the question of the justification for experience rating, whether on the grounds of effectiveness or equity, it is no light task to develop a suitable formula. With all the difficulties in establishing a formula and the shortcomings of such schemes, it is surprising that they seem to attract unquestioning acceptance. In some countries this may be due to the fact that more employers benefit through receiving rebates than have penalties imposed. ACC did award rebates for some four years but abandoned the practice and unlike the former Workers' Compensation Board, did not impose penalties, though empowered to do so.

With work-related disease a completely different set of circumstances has to be considered, especially with those conditions with long latency periods. Workers' Compensation insurance companies have always been concerned that sometimes they have had to incur a liability to pay

51 Boden, L I, Round Table 7: Discussion, (1989) 572 *Annals of the New York Academy of Sciences*, 291.

52 Draper, J W P, Personal communication.

compensation that was not anticipated and for which they had not received an appropriate premium, such as claims involving hearing loss or exposure to asbestos. In New Zealand Accident Compensation provides an equitable means of spreading any such burden.

Thus it has been well demonstrated, if not completely accepted, that experience rating can have no application in the case of work-related illness. Many such claims and most of the serious ones arise out of exposure to a contaminant over a period of years; often well back in the past. This may also be in the service of more than one employer and sometimes the employment responsible may not be identified. It would be possible for an undertaking to have a very good accident record while exposing its workers, even unknowingly, to a toxic substance that may cause problems, if not immediately, at some time in the future. Yet an incentive scheme could justify a rebate to that employer. However if work-related disease claims were to be excluded from the calculus, as they should be, then that would provide an incentive for employers to concentrate on preventing traumatic injury and ignore potential health problems. This needs to be considered in the light of a growing acceptance that the incidence of work-related disease is much greater than has previously been accepted. The comment of Weiler mentioned in the introduction also merits repeating:

Industrial disease bids fair to be the major battleground of the next decade, exposing serious questions about the future viability of Workers' Compensation.⁵³

11.10 OTHER POSSIBLE VARIATIONS TO ACCIDENT COMPENSATION

The Law Commission recommended the provision in the Accident Compensation Act 1982 requiring the employer to pay the first week's compensation be increased to 2 weeks.⁵⁴ Atiyah suggested that the period could be extended even to from 4 to 8 weeks without a right of recoupment from an insurance fund.⁵⁵ In view of the frequent demands for incentives in New Zealand it is only logical that these suggestions be given serious consideration. Some may balk at the suggestion that insurance for such liability by an employer be prohibited but unless this were the case, the provision could be an empty gesture for insurance would result in the other employers who also insure sharing the cost of those with the higher accident rate.

⁵³ Weiler, P, *Reshaping Workers' Compensation for Ontario*, (1980) Toronto: A Report submitted to the Minister of Labour, 137.

⁵⁴ Law Commission (1988) xv.

⁵⁵ Atiyah, P S, *Accident Premiums and Variable Premium Rates for Work-connected Accidents*, (1976) *2 Industrial Law Journal*, 1-11, 89-105, 104.

11.11 AN INJURY TAX

Another suggestion that has been put forward in the United States is that of an "injury tax." It was developed by the Council of Economic Advisers in a report that was prepared before OSHA was passed but the report was quashed and never tabled according to Mendeloff.⁵⁶ Mendeloff gives three reasons for suggesting that the enforcement of safety standards by regulation is less efficient than the suggested injury tax. He points out that a substantial number of injuries, for example, strains and overexertion, would not be prevented even if all standards were complied with. Preoccupation with safety standards may divert resources from prevention of these non-standards-related injuries. Even with those injuries for which compliance with standards is an appropriate preventive measure, changes in the physical environment required by standards may not be the most effective method. Education and training may be far more efficient. Finally Mendeloff points out that a particular standard may not be the least costly method of ensuring the desired level of safety and then comments:

Unlike the standards approach, an injury tax would give employers an added incentive to prevent *all* types of injuries and would not constrain them from employing the least costly preventive methods ... an employer will usually have better information about the least costly measures for preventing injuries in his workplace than the government does.⁵⁷

Though this approach has been advocated by some economists, the injury tax proposition has received little support even from employers who may be advantaged by such a scheme. The suggestion that the tax could be regarded as a "license to maim" would clearly make it less attractive to most politicians, let alone unions and other interested parties. Undoubtedly it would be unlikely to find much support in New Zealand.

11.12 CANADIAN APPROACHES

Workers' Compensation Boards of British Columbia, Nova Scotia and Prince Edward Island and the Quebec Commission de la sante et de la securite du travail, are in the unique situation of being not only responsible for compensation and rehabilitation but also have enforcement functions, administering their own Health and Safety Regulations.

The British Columbia Workers' Compensation Act, for example, empowers the Workers' Compensation Board to undertake the functions usually carried out by a labour department or similar

⁵⁶ Mendeloff, J. *Regulating Safety: An Economic and Political Analysis of Occupational Health and Safety Policy* (1979) Cambridge MA: MIT Press, 25.

⁵⁷ Mendeloff (1979) 27.

authority. For that purpose the Board has its own inspectorate which administers regulations which give it very wide powers. Where it is considered that sufficient precautions are not being taken for the prevention of injuries and industrial disease; the workplace is unsafe; or the employer has not complied with regulations, orders or directions, the Board may assess a penalty and levy the employer a percentage on the premium payable by the employer to the Board. Where there has been injury, death or incapacity from an occupational illness and the Board considers that this was substantially due to gross negligence of an employer or to the failure to adopt reasonable means for the prevention of injuries or disease or to comply with orders, directions or regulations of the Board, the Board may levy the employer a penalty based on the amount of the compensation but not exceeding \$28,064.08 (as at 1.7.87). The Board also has power to close down an operation where immediate danger exists and where an employer fails, neglects or refuses to comply with such an order to close down the activity, he is liable to a fine on conviction not exceeding \$140,320.52 (as at 1.7.87) In certain cases where the breach has been committed by a corporation any director, officer, manager or supervisor who has consented or connived in the offence may also be prosecuted. There is no appeal from any Board's decision.

In addition to its enforcement role the Board also undertakes substantial educational work. In many of the other provinces the Workers' Compensation Board does not have the enforcement role and in Ontario, for example, the Workers' Compensation Board funds some nine industry based accident prevention associations to undertake the educational role.

Incredibly the prevention role of ACC as set out in s 35 of the Accident Compensation Act 1982 has been greatly eroded from that in the original 1972 Act. The second Act streamlined the provisions covering both the prevention and rehabilitation functions. Part II of the 1972 Act, for example, required the Commission, as it was then, to have a safety division controlled by a "special officer." The 1982 Act was less specific giving the Corporation greater discretion. Canadian experience confirms that there is much to be gained from a close link between compensation, rehabilitation and prevention. Regrettably, as the Law Commission stated:

Unfortunately, what seemed to be the more intangible and pressing issues concerning compensation have tended to submerge these priorities.⁵⁸

Just why both the prevention and the rehabilitation functions were never allowed to develop to their fullest potential has never been fully explained. Even today in its White paper Government seems only to be concerned that there be no possible cost inefficiencies.⁵⁹ The prevention personnel that ACC

⁵⁸ Law Commission (1988) xi.

⁵⁹ Birch, Hon W, *Accident Compensation: A Fairer Scheme*, (1991) Wellington: Minister of Labour, 62.

originally had, were entirely involved in education and training while the role of the inspectorate was enforcement. The extent that departmental officers also had an educational role, that was, to a considerable extent concerned with aspects of regulation and enforcement. Close liaison between ACC officers and the departments was aimed at ensuring that there was no duplication. It could also be stated that as the resources of both ACC and the departments were such that neither was able to meet the real needs of industry.

11.13 KILLING AND INJURING AS CRIMES

Others put forward the idea of a more radical approach, namely treating in appropriate circumstances, the injuring and killing at work as crimes and thus leaving the way open for offending owners and managers of undertakings to face manslaughter charges and possibly receive prison sentences. In this, some draw the parallel between the criminally irresponsible act in a workplace and that on the highway where manslaughter charges are sometimes laid. This also has an affinity with the contemporary attitude of society to "white collar crime" though with the many serious commercial debacles, views are changing.

Glasbeek and Rowland provide a very detailed examination of the principles involved and conclude:

We believe that to perceive health and safety at work from the worker's perspective, a belief which may gain adherents by the use of the criminal process, could lead to better enforcement of existing conditions and to the promulgation of more exacting ones. Given the continuation of our present economic system for the foreseeable future, our aim is to draw attention to the urgent need for a new frame of reference when looking after workers' health and safety. Nothing is more important, and thus the most drastic of measures are completely warranted.⁶⁰

Three critical issues are raised in connection with the treatment of workplace injury and death as crimes. Firstly, will such a step be a deterrent as writers like Glasbrook and Roland maintain? Secondly if this proposition is accepted, the next question could well be to determine just who should be prosecuted. The answer to this question could be easy in the case of a small organisation but very difficult where a large organisation is concerned with a long chain of command. Finally there is Ison's point quoted again on p 189 that such a course is limited by the outcome of the conduct.

A considerable stir was caused in the United States when a trial resulted in the conviction and sentencing of corporate officers charged with murder and other offences following the death of an

⁶⁰ Glasbeek, H J & Rowland, S Are Injuring and Killing at Work Crimes? (1979) 17 *Osgoode Hall Law Journal*, 506-594, 593.

employee in a silver recovery plant.⁶¹ Ignorant workers with little knowledge of English had been employed, being given no instruction or protection. The important issue raised in that case was the fact that previously, corporate officers had never been held to have a duty to provide workers with a safe place of work.

Since the silver recovery case there have been several other similar prosecutions taken but in a number of cases a jury has been reluctant to convict or a judge has set aside the verdict as witness the following comment:

Despite some reversals, prosecutors around the country are expressing a heightened interest in investigating and prosecuting the more egregious violations of occupational safety and health laws. Nowhere has the effort been more institutionalized as completely as in the County of Los Angeles.⁶²

The authors of this article recently visited Australia to help boost the Victorian Minister of Labour's campaign to reduce work accidents and diseases which including the possibility of gaol sentences for directors and executives.⁶³

It seems only logical that a single individual running an enterprise should not be treated differently from others who has formed their enterprise into a company, a situation that was envisaged over 100 years ago in the Employers Liability Act 1882 referred to on p 166. However the position of subordinate managers who may have to differentiate between their duty to the company and its shareholders and their duty to safeguard the workers could be a cause of considerable personal conflict. One possibility would be for the subordinate manager to request instructions in writing but there would be occasions where even that may be injudicious.

The difficulty in reconciling the community's attitude to traffic accidents with those in the workplace is also reflected in a recommendation in the working paper of the Law Reform Commission of Canada on workplace pollution:

As a general principle, legislation should not be structured in a way which might result in treating the infliction of harm or the creation of an increased risk of harm in the workplace

61 *People v O'Neil*, No 83C-11091 (Cook County Cir Ct, June 15, 1985).

62 Reiner, I, & Chatten-Brown, J, *Deterring Death in the Workplace: The Prosecutor's Perspective*, (1989) 17 *Law, Medicine & Health Care*, 23-31, 27. Reiner took office as Los Angeles District Attorney and at that time the first occupational safety and health section in a local prosecutor's office was established.

63 Victoria's Plan to Gaol OHS Offenders angers Employers, (1991) 1 (2) *SafACT*, 37-39.

as in any way less culpable, or less deserving of criminal sanctions, than analogous inflictions of harm or creations of an increased risk of harm in other contexts.⁶⁴

As von Ebers also comments:

Nevertheless, when death occurs in circumstances evincing a knowing disregard for serious health risks, homicide liability ought to follow.⁶⁵

It is interesting to note that the Minister of Transport has recently proposed a number of policy changes in an attempt to reduce the road toll, among the changes under investigation is "[g]reater use of manslaughter charge for serious offences."⁶⁶ About the same time the Minister of Labour issued a document outlining ten principles to be used for drafting a new Bill to replace the Occupational Safety and Health Bill 1990. Principle seven is concerned with "[d]ual approach of incentives and penalties."⁶⁷ While recognising that "[h]igh penalties are essential for exposures, events or accidents that have the potential for death or serious injury," there is no suggestion of a greater use of manslaughter charges for culpable conduct in the workplace.

In many cases it could be a question of who to prosecute. Hopkins and Parnell point out that legislation governing safety in New South Wales coal mines provided that a manager, owner, or agent could not be convicted if "the contravention or non-compliance was due to causes over which he had no control and against which it was impractical for him to make provision."⁶⁸ For a similar position in New Zealand mines refer to s 257 of the Coal Mines Act 1979 and s 235 Mining Act 1971 identical sections which exempt an owner in certain circumstances where proceedings are taken against both the owner and manager.

While the justification for a criminal prosecution in appropriate cases cannot be denied, it would appear that the chances of successfully bringing a successful prosecution against the real offender, if such could be satisfactorily identified, would not be of a high order. The key issue could be, what would be the position of a subordinate manager who may have cut corners in a way which could be considered criminally negligent but which he could justifiably claim was in response to a directive to reduce costs

64 *Workplace Pollution, Working Paper 53*, (1986) Ottawa: Law Reform Commission of Canada. 78.

65 von Ebers, D, *The Application of Criminal Homicide Statutes to Work-related Deaths: Mens Rea and Deterrence*, (1986) V 1986, N 3, *University of Illinois Law Review*, 969-999, 999.

66 Storey, W R, *Targets for Road Safety 1991-93*, (1991) Wellington: Minister of Transport.

67 Birch W F, *Management of Health and Safety in Employment*, (1991) Wellington: mimeo, Minister of Labour, 4.

68 Hopkins, A, and Parnell, N, *Why Coal Mine Safety Regulations in Australia are not Enforced*, (1984) 12 *International Journal of Sociology and the Law*, 179-194, 185.

and which emanated from the board of the company far distant from the actual workplace. The comparison with criminal conduct on the highway is not totally appropriate for there the identity of the offender who should be prosecuted is often much more clear cut. The failure of the prosecutions against a number of persons involved with *The Herald of Free Enterprise* is indicative of problems that can arise. One is reminded of the comment of Edward, First Baron Thurlow LC: "Did you ever expect a Corporation to have a conscience, when it has no soul to be damned, and no body to be kicked."⁶⁹

In a recent article Carson and Johnstone put forward another point of view.⁷⁰ They argue against the proposition that in some cases of occupational fatalities, manslaughter charges should be laid. They point out that though charges laid under the Victorian Occupational Health and Safety Act 1985 are, in fact, criminal charges, most do not view them as such being regarded by many more as "social offences." The authors then comment that:

By prising out a few cases for treatment under separate, criminal auspices, the criminal status of what is left is rendered even more ambiguous than it is already becoming under the impact of the continuing historical and structural processes which we have outlined.⁷¹

In summary therefore there can be no doubt that if a regulation is to be meaningful there must be provision for heavy penalties. The possibility of introducing less onerous administrative methods of applying penalties should be considered and here the experience in British Columbia and in the United States with OSHA could be profitably studied. Whether such procedure would find favour in New Zealand is a moot point as it has not been seriously considered. There is good reason for that course to be more widely discussed by interested parties. The seeming reluctance to use sanctions more widely recalls the old tag of "one free bite." The use of improvement and prohibition notices could be stepped up. Most New Zealanders would be astonished at the level of penalties that have been imposed in the United States by OSHA. The Ford Company, for example, had a penalty of \$1,956,800 imposed for record keeping violations. After having been cited for deficiencies in one plant and paying a penalty of \$305,000, Ford undertook to improve matters but failed to do so thus incurring the second and far more substantial penalty.⁷² Despite the case that can be made for the institution of criminal prosecutions in the very serious cases of criminal negligence, there are serious limitations to such a course of action. Instances like the Chicago silver recovery plant would surely be very rare.

⁶⁹ Coffee, J C, No soul to damn: No body to kick: An unscandalized inquiry into the problem of corporate punishment, (1981) *79 Michigan Law Review*, 386-459.

⁷⁰ Carson, K & Johnstone, R, The Dupes of Hazard: Occupational Health and Safety and the Victorian Sanctions Debate, (1990) *26 Australian and New Zealand Journal of Sociology*, 126-141.

⁷¹ Carson & Johnstone, (1990) 140.

⁷² Tyson, F R, Don't make promises to OSHA you can't keep! (1989) *140 (4) Safety and Health* 43-44, 43.

11.14 NEW ZEALAND'S NEED FOR SANCTIONS

Few would disagree with the need for sanctions and further that maximum penalties should be of a high order. The more difficult problem is to determine when sanctions should be applied. Combined with that aspect is the allocation of resources that would be required for any substantial increase in present enforcement activity.

While there would be considerable support in some quarters for some form of incentive rating and other market forces, the evidence suggests that any reliance on such approaches will prove unproductive if not counterproductive. The question of treating killing and injuring as indictable crimes would be only capable of extremely limited application and the warning of Carson and Johnstone mentioned above needs to be borne in mind.

Another point that needs wider consideration is W S Gilbert's advice to "let the punishment fit the crime." When a serious breach has occurred there seems no reason why the penalty should be lighter because the victim suffered only slight injury. Here Ison's comments quoted on p 189 are very much in point. The concentration on breaches after the event needs review and here the Law Commission's recommendation of targeting "observed conditions" should get much wider consideration.⁷³ After all the whole objective is prevention and that means action before disaster strikes.

If the inspectorate is to give the greatest return for the taxpayers' dollar then it needs to have a considerable measure of discretion. For that discretion to be used wisely the inspectorate must be well trained and well versed in all the hazards with which they have to deal. While the present inspectorate may be well versed in most safety issues, the same cannot be claimed with respect to their knowledge of the health hazards of the working environment; fortunately a matter which is now receiving attention.

73 Law Commission (1988) 39.

PART V

PROBLEMS OF CONTROL

CHAPTER 12

IS THERE A ROLE FOR COST-BENEFIT?

12.1 THE LIMITATIONS

As has been suggested several times in this thesis, there has been a great deal of discussion on the desirability of ensuring a balance between the cost of preventive measures and the benefits that are expected to flow therefrom. To some, the idea that there can be a balancing of the risk of harm to the individual, against a cost to the employer and ultimately to the product or service, is completely abhorrent, such a view is unrealistic. Clearly there is no point in having the safest and healthiest workplace in the country if your products or services are too expensive to attract custom. Accordingly, at times, consideration must be given to that particular point of view, namely, whether the preventive measures being proposed or implemented by any legislation can be justified when their cost is set against the benefit. Nowhere has greater disputation emerged than in the United States with respect to measures being proposed by OSHA to control or eliminate health hazards. Ashford quotes a study by a firm of consultants with respect to proposed noise levels which estimated the cost of complying with a 85 dBA level as over \$31.6 million for 39 major industries as against \$13.4 million for a 90 dBA level. (1973 dollars)¹ Sales and profits for the same industries are quoted in 1971 dollars as \$664.5 million and \$49.8 respectively. The benefits are not quantified however and indeed that would be very difficult. Ashford does not mention any assessment of the benefits that would be achieved. That would, however, not be easy to determine. Most benefit assessments are related to loss of earning capacity. Though hearing loss can affect earning capacity, its greatest effect is on the quality of life; very important to the individual but not really quantifiable. As Wilson comments on the non-economic effects of disease:

¹ Ashford, N, *Crisis in the Workplace* (1976) Cambridge MA: MIT Press, 322.

... cost-benefit analyses of workers' safety and health make no allowance for the benefits to relatives of not seeing one of their family die of cancer; economists do not concern themselves with such things.²

Not surprisingly cases have arisen when the dire predictions of management have proved to be very wide of the mark. In the United States when OSHA proposed a new standard for polyvinyl chloride, at the hearing, the plastics industry presented studies predicting a loss of \$69-90 billion and about 2 million jobs. Actually, the real cost of compliance was about \$325 million in capital and a loss of 290 jobs through the closing of two obsolescent plants.³ Brook quotes a 1976 estimate by Morrall of the cost per life saved under the then OSHA regulations as \$92.5 million. She then comments:

A humanitarian concern to avoid debilitating injuries and fatal accidents cannot render such costs irrelevant.⁴

Many would find great difficulty in accepting such an estimate as that of Morrall.⁵ For example, Graham and Vaupel have been quoted as finding that in the United States the cost per life saved to be \$2.6m in environmental protection and \$12.1m in occupational health and safety programmes.⁶ Many other estimates have been published. As to Brook's comment about humanitarian concern, an unanswerable question would be at what point may humanitarian concerns be waived aside. While many would concede that there is such a point, few would care to nominate it in dollar terms, especially where the contending factors will have been determined on a very tenuous basis. Refer also to #13.2 and #13.3.

In a decision of the Supreme Court of the United States which aroused considerable interest, the question at issue was whether the requirement of "feasibility" in section 6(b)(5) of the Occupational Safety and Health Act mandated, prohibited or permitted consideration by OSHA of cost-benefit analysis prior to setting standards for permissible levels of toxic substances in places of employment.⁷ The majority decision was that cost-benefit analyses were neither required nor permitted by the Act. An

2 Wilson, G K, *The Politics of Safety and Health: Occupational Safety and Health in the United States and Britain*, (1985) Oxford: Clarendon Press, 17.

3 Tafler, S, Cost-benefit Analysis Proves a Tough Task, (1982) 2 *High Technology*, (4) 76-77.

4 Brook, P, *Freedom at Work: the Case for Reforming Labour Law in NZ*, (1990) Auckland: Oxford, 88.

5 Morrall, J F, A Review of the Record, (1986) Nov-Dec *Regulation*, 25-34.

6 Quoted in *Report of the Royal Commission on Matters of Health Use of Asbestos in Ontario*, (1984) Toronto: Ministry of the Attorney General, 425.

7 *American Textile Manufacturers Institute Inc. et al v. Donovan* 101 S. Ct. 2478 (1981) generally referred to as the "Cotton Dust Case".

exception would be if the costs were such that would prevent the goal of the legislation from being achieved. In other words, the requirement resulted in the destruction of the whole industry. This case has given rise to much debate because of its political nature, namely, is the matter of ambiguous language in the statute a matter for the judiciary or the legislature.

In an exhaustive examination of the factors surrounding the cotton dust case Moss concludes:

The logic of the *Cotton Dust* case indicates that both cost-benefit and cost-effectiveness analysis are unacceptable bases for OSHA regulation of toxic materials. The methodologies are inconsistent with the OSH Act and are potential tools for those who would manipulate subjective values and assumptions for purposes other than the health and safety of workers in the United States.⁸

It is no wonder that the Canadian study of Doern *et al*, when considering standard setting comments:

There is a need for more formal consultative approaches in the setting of standards and guidelines in Ontario without adopting the excess of "due process-itis" which plague the American regulatory scene. Both business and labour groups are leery of adopting the American approach, particularly its inevitable reliance on the courts.⁹

The same study goes on to discuss the role of cost-benefit analysis:

The burden of proof argument always begs the question, "burden of proof of what?" Once the human health effects are identified, standard setting invariably and unavoidably involves questions of "proof" involving politics and economics. One is no longer judging just the existence of risk or health effects but rather the acceptability of risks and health effects. Such judgement cannot help but involve both the economic and political calculus of costs and benefits. Such a "calculus" can be primarily hidden, as it has tended to be, and based on private "behind-the-scene" political and economic bargaining among the interests at stake. All parties in the health and safety regulatory process have practiced such private political cost-benefit tradeoffs. Businesses do it in the choice of capital equipment and the speed with which they install better health and safety technologies. Labour unions have done it by trading off (implicitly or explicitly) health and wage benefits, not to mention jobs and job security. Regulators do it by varying the speed of the regulatory response and the tenacity of their enforcement.

8 Moss, T. Cost-Benefit Analysis, Cost Effectiveness Analysis and the Cotton Dust Standard: A Matter of Life and Death, (1982) 35 *Rutgers Law Review*, 133-162, 161.

9 Doern, G B, Prince, M & McNaughton, G, *Living with Contradictions: Health and Safety Regulation in Ontario* (1982) Toronto: Royal Commission on Matters of Health and Safety Arising from the Use of Asbestos in Ontario, 5.3.

The question therefore is not whether one should have or will have cost-benefit calculus in the standard setting process but whether it will be assessed privately or publicly. While we have no particular desire to create more employment for economists, we do think, on balance, formal and more open political and economic cost-benefit analysis is preferable to a system based almost wholly on private cost-benefit bargaining. We are very conscious of the abuses of formal cost-benefit analysis but would still regard the need for such published assessments as a useful reform provided that they are accompanied by the other institutional changes needed for the initial technical identification of hazards noted above. We therefore regard experiments such as the federal SEIA [socio-economic impact assessment] process to be well worth trying in a regular way by the Ontario government. They should be a formal part of the consultative process proposed above.¹⁰

The SEIA process applies when the regulations proposed are likely to impose private sector costs in excess of \$10 million.

12.2 THE COST OF A LIFE

Frequently one simple question is put -- how much are we prepared to spend to save one life? Numerous studies have been made with a view to identifying such a figure and, as may be expected, widely varying amounts have been calculated. With cost-effectiveness studies, the actual figure is not so important provided the same criteria is used to assess the alternative strategies being considered. In a cost-benefit calculus there may be quite a different outcome if a figure of \$1,000,000 was used as against \$100,000; thus this may become a key element in the calculation. For example the Ministry of Transport has recently increased the figure used by Transit New Zealand and other roading authorities from \$235,000 to \$2,000,000.¹¹

12.3 A TOUCH OF REALISM

Abel gives two reasons why "the scientific facade of this economic formulation conceals a number of theoretical flaws and empirical problems."¹² After commenting on the difficulties of calculating the costs of accident avoidance and the impossibility of calculating the benefits, he continues:

¹⁰ Doern *et al* (1982) 5.6.

¹¹ Your life is now worth \$2 million, *Motoring Today* 14 July 1991, 15.

¹² Abel, R L, A Critique of Torts, (1990) 37 *U C L A Law Review*, 785-831, 808.

Economists cannot tell us the value of bodily integrity, emotional well-being, or life because these are not defined by the market.

And then:

The costs of accidents can only be determined collectively -- after the fact by a judge or jury, or before a legislature or regulatory agency. In each case, this is a political decision, not a finding of positive economics. ... Thus a central element in the cost-benefit analysis is hopelessly indeterminate.¹³

12.4 USEFUL CRITIQUES

In an exhaustive critique of cost-benefit analysis Prest and Turvey conclude:

The case for using cost-benefit analysis is strengthened, not weakened if its limitations are openly recognised and indeed emphasised. ... The technique is more useful in the public-utility area than in the social-services area of government. Comparisons between, say, different road projects are more helpful than those between, say, road and water projects; and both these are likely to be more helpful than application in the fields of education, health, research and so on.¹⁴

As Schneiderman comments "cost benefit is still an infant art" and he questions the rationality of using "infant ideas to make adult decisions."¹⁵ Clearly the difficulties of engaging in cost-benefit studies on a large scale are all too obvious and as Prest and Turvey point out this is specially the case in the health area.

There is also another approach, cost-effectiveness analysis which compares the cost of alternative means for achieving a desired objective. Here the proposals being compared would each have to have the same goal but as with cost-benefit analysis, the greatest difficulty would be to estimate the effectiveness of the alternatives being considered. Nevertheless, when considering which of several alternative strategies to adopt, it would seem that a reasonable attempt to evaluate effectiveness would be an improvement on relying on the usual hunches or intuition.

13 Abel (1990) 808.

14 Prest, A R & Turvey, R, Cost-benefit Analysis: A Survey, (1965) 75 *The Economic Journal*, 683-735, 731.

15 Schneiderman, M A, Cost-benefit Social Values and the Setting of Occupational Health Standards, in *Legal & Ethical Dilemmas In Occupational Health*, Lee, J S & Rom, W N Eds, (1982) Ann Arbor: Ann Arbor Science, 191.

Latin writing on the American scene provides another view. There, the regulatory agencies have had to face "a decade of intrusive appellate decisions and political emphasis on cost-effectiveness justifications." These procedures are the "quality of risk-assessments" and as Latin states "most commentators assume that agencies must always produce the best available scientific predictions regardless of the imperfect state of the art." Latin concludes:

Because predictions of toxic effects generally cannot be grounded on reliable scientific judgements, social policy criteria must play an influential role in the choice among competing estimates. Once we recognise that toxic substances regulation requires a panoply of policy determinations to supplement provisional scientific judgements, it is essential that risk-assessment agencies explicitly consider the social ramifications of scientific uncertainty, strive for analytical coherence in their treatments of currently indeterminate issues, and clearly explain the principles, practices, and values underlying particular estimates of toxic hazards.¹⁶

The comments made by Latin deserve the greatest consideration by any enforcement agency in its determination of the level of "acceptable risk."

12.5 A DETAILED STUDY

Morgan carried out a detailed study into the costs and benefits of the 1965 British Power Presses Regulations concluding that the regulations have been relatively cost-effective. Apart from the reduction in accidents to workers, the employers also gained savings from averted breakdowns though this benefit could not be quantified. The study clearly highlights the difficulties in making such a calculus and finishes:

To conclude on a note of caution, great care should be taken when carrying out or interpreting studies of economic impact of regulatory policies. The present study has clearly shown that the estimates made are quite sensitive to the assumptions employed, the need to make a range of assumptions being dictated by the lack of data available. Lack of data has also led to some important elements remaining unquantified.¹⁷

16 Latin, H A, Good Science, Bad Regulation, and Toxic Risk Assessment, (1988) 5 *Yale Journal on Regulation*, 89-148, 148.

17 Morgan, P. The Costs and Benefits of the Power Presses Regulations 1965, (1983) 21 *British Journal of Industrial Relations*, 181-196.

That these regulations resulted in a substantial drop in power press accidents could well be due to the fact that the regulations were highly specific and not only were they preceded by detailed studies but they were accompanied by the thorough training of operators and tool setters.¹⁸

These regulations seem to be in accord with the four principles for successful regulation suggested by Wigglesworth and previously referred to in #8.4:

There must be knowledge of the legislative requirements, which must be easy of comprehension; they should be technically practicable; there should be active motivation towards compliance; and they should permit ready detection of non-compliance.¹⁹

Roll-over protection for tractors could be a New Zealand example of such a regulation. It is fairly evident from the views expressed above that were it possible to carry out a number of studies with respect to a wide range of regulations, the individual assessments of the cost-benefit calculus could vary widely.

12.6 A BRITISH VIEW

Even industry associations, that are rather keen to see cost-benefit principles applied to the implementation new regulatory measures, are aware of the difficulties. In a statement prepared for the Employment Committee of the House of Commons by the Chemical Industries Association and the Chemical industries Safety, Health and Environmental Council and after making the suggestion that cost-benefit considerations should apply to every aspect of health and safety, the following appears:

Cost-benefit studies are expensive and any judgements (rather than analysis) arrived at are subject to uncertainties. However, such studies could develop priorities and indicate where legislation may not be necessary, especially where the costs to industry invoked by it are out of line with those of competitors in other countries.²⁰

The chemical industry would be more heavily involved with assessment of health hazards than most and it is interesting to note their acknowledgement of the difficulties involved.

18 Morgan (1983) 188.

19 Wigglesworth, E.C. Legislation and Injury Control, (1978) 18 *Medicine, Science and the Law*, 191-9, 194.

20 House of Commons, *Sixth Report from the Employment Committee: Session 1981-82, The Working of the Health and Safety Commission and Executive: Achievements since the Robens Report*, 20.

12.7 CONCLUSIONS

In summary, therefore, it would seem desirable to heed the words of caution sounded by Prest and Turvey. None of the research undertaken for this thesis gives any cause for comfort about the extent of available data that would be needed before any reasonable assessment could be made. Clearly the casemade by Doern *et al* for any cost-benefit analysis to be undertaken in an open manner cannot be ignored. It could well be that the best that we could do in New Zealand would be to extrapolate from studies made elsewhere; a highly questionable venture.

What then should be our attitude in New Zealand to any suggestion that regulatory efforts be first justified on a cost-benefit basis? To take a concrete example; the recently circulated proposed *Management of Substances Hazardous to Health Regulations* referred to in #13.11. If implemented these or similar regulations would impose a number of duties on employers which would vary substantially from industry to industry and often from employer to employer. No doubt too, the potential hazard that such regulations seek to eliminate or alleviate would also vary widely. Some indication may be gathered from current biological monitoring practices undertaken with workers exposed to lead or certain agricultural chemicals and the cost of medical surveillance undertaken. However, in general, the task of assessing the cost for employers as a whole would be a difficult one and the accuracy of any estimate very doubtful.

Then there is the other side of the question; the savings in disease prevented. Bearing in mind the considerable unknown factor in the extent of work-related disease, it would be difficult if not impossible to get even an approximate picture of numbers involved let alone the cost incurred by the current lack of controls similar to those proposed. Here the problem of latency again serves to further complicate matters. The warning given by Prest and Turvey about the very limited application of cost-benefit studies to health issues would suggest that in New Zealand, such be entered into only in a very general way, if at all. Lack of data, let alone credible data, for either side of the equation is likely to be the determining factor.

CHAPTER 13

LIMITING EXPOSURE TO HAZARDOUS SUBSTANCES

13.1 CONTROLLING THE PROBLEM

The complex nature of the health hazards calls for a well-resourced enforcement agency, informed management and a well-trained workforce, all of which New Zealand is lacking to some degree. For research and information we will continue to be heavily reliant of the experience of the larger more industrialised countries. With the growing public awareness of the problems of environmental pollution an opportunity exists to harness that concern to the problem of pollution within the workplace.

13.2 ACTION OVERSEAS

Hazardous substances can present a danger not only in their manufacture or use but also in their transport and storage. It is logical, therefore, to ensure that the minimum amount necessary is used, transported or stored at any one time. In this Canada provides a good example to follow. In Canada, as in many countries, the control of hazardous substances in Canada was spread between the Federal Government and the 10 provincial and two territorial governments and, within some jurisdictions, responsibility rested with a number of government agencies. Consequent upon a realisation that vital safety and health information was frequently lacking in workplaces, the various agencies suggested that there be established, a coherent national system of communicating information about hazardous substances used in the workplaces. A tripartite steering committee was formed to manage the Workplace Hazardous Materials Information System (WHIMS) project in 1982.¹

Though some specific types of hazardous substances are exempted from WHIMS because they are covered in other Federal legislation, WHIMS comprises three subsystems:

¹ McLellan, J W, Hazardous Substances and the Right to Know in Canada, (1989) 128 *International Labour Review* 639-650..

The Label;
 The Material Safety Data Sheet (MSDS); and
 The Worker Education Programme.

It is probably the last element which is of the utmost importance for though this is not found in many jurisdictions, yet the need is obvious. The depth of these programmes can be obtained from the following regulation recently proclaimed by one of the jurisdictions as outlined by McLellan:

- 1 Every employer shall, in consultation with the Safety and Health Committee or the safety and health representative, if any, develop and implement an employee education programme with respect to hazard prevention and control at the workplace.
- 2 The employee education programme shall include the instruction of each employee who handles or is exposed to a hazardous substance with respect to:
 - (i) the product identifier of the hazardous substance;
 - (ii) all hazard information disclosed by the supplier of the hazardous substance or by the employer on a material safety data sheet or label;
 - (iii) all hazard information of which the employer is aware or ought reasonably to be aware;
 - (iv) the observations [regarding any material-related worksite hazards identified to the employer by the qualified person appointed by the employer to conduct investigations of the workplace];
 - (v) the information disclosed on the material safety data sheet ... and the purpose and significance of that information; and
 - (vi) the information to be disclosed on a material safety data sheet and on a label ... and the purpose and significance of that information.²

McLellan concludes:

In the many ways described above, information known to the producer, distributor, supplier and the employer-user of a hazardous substance or material used in the workplace is made known and explained to workers in recognition of their "right to know" how they are protected from work-related injury or illness and how best to protect themselves and their fellow workers when exposed to such substances in the workplace. The WHIMS is being implemented with the full support of industry and organized labour in Canada. It follows, therefore, that the OSH regulatory agencies can expect the task of ensuring compliance on a uniform national scale to be feasible. This belief is based on the knowledge that the

² McLellan (1989) 648.

information system being implemented is compatible with the wishes of producers, employers, and organized labour owing to the consensus reached on hazardous substances and the right to know during the consultations which were such an important part of the WHIMS project. In addition, the various parties concerned can truly expect that their rights will be protected under the law in all jurisdictions in Canada.³

Britain provides another important development with *The Control of Substances Hazardous to Health Regulations 1988*.⁴ These regulations also emphasise the need for information and training. Regulation 12 (1) reads:

An employer who undertakes work which may expose any of his employees to substances hazardous to health shall provide that employee with such information, instruction and training as is suitable and sufficient for him to know –

- (a) the risks to health created by such exposure; and
- (b) the precautions which should be taken.

Other important features of the regulations are the provisions for the regular examination and testing of local exhaust ventilation plant, medical surveillance of exposed workers and in some circumstances, the regular monitoring of the workplace and the keeping of records. The records of personal exposures and health surveillance of individuals must be kept for 30 years and in other cases at least 5 years.

13.3 STANDARD SETTING

The word "standard" is used rather loosely and in its most narrow sense would refer to a standard approved by a recognised standards body such as the Standards Association of New Zealand. In the United States and elsewhere it is often used much more widely and could relate to a requirement by a regulatory authority such as OSHA and thus would be the equivalent of a New Zealand regulation. It could also refer to requirements established by a trade or professional body or an individual undertaking as part of its own system.

There are considerable differences between safety standards and health standards. Frequently a safety hazard will be obvious and there for all to see. Further mere compliance with a safety standard will normally ensure freedom from injury unless that standard is circumvented or otherwise overridden in

³ McLellan (1989) 649.

⁴ SI 1988 No 1657.

some way by a deliberate action. With health standards the picture is quite different. Health standards can offer no like degree of certainty as do safety standards with the exception of those imposing total bans on the manufacture and use of a substance. For example s 32 of the Factories and Commercial Premises Act 1981 prohibits the use of white or yellow phosphorus in the manufacture of matches. A WHO document lists industrial and agricultural chemicals that have been banned in various countries. However no banned chemicals are listed against New Zealand. There are however a number of chemicals that are recorded as being voluntarily withdrawn from the New Zealand market.⁵ Presumably at least some of those chemicals if not withdrawn would have been banned.

Unfortunately some tasks present both health and physical hazards each requiring a different type of protection. While a welding helmet would normally give the required protection against damage to the eyes and face from sparks, infra-red or ultra-violet radiation, it will offer little protection from metal fumes.

Not only is the determination of acceptable exposure levels of any toxic or hazardous substance a task fraught with difficulty but there is also the matter of the wide range of individual susceptibility or sensitivity to many substances. This, threshold limit values (TLVs) attempt to do.

13.4 THRESHOLD LIMIT VALUES

It is commonly thought that for many, if not all toxic substances there exists a valid threshold up to which there will be no adverse health effect. However, at the same time it is accepted that that point could vary widely from individual to individual and even an individual's susceptibility may not be constant. Having said that, at least three major problems still remain. The most obvious one is the tremendous problem of determining the threshold for the vast number of substances in regular use. Then there are the individuals who may be hypersusceptible to particular substances and one has only to think of allergic reaction to many common substances of a substantial proportion of the general populace. Additionally there are those whose health makes them either permanently or temporarily more susceptible to some harmful substances. To these three problems can be added that of synergistic reactions with the exposure to more than one substance. The multiplicative effect of smoking combined with exposure to asbestos is graphic evidence of the importance of this aspect and wherein lie some of the greatest gaps in our knowledge.

⁵ *Consolidated List of Products whose Consumption and/or sale have been banned, withdrawn, severely restricted, or not approved by Governments*, 2nd Issue, (1986) New York: United Nations.

TLVs have a long history with the first recorded attempt to assess an acceptable exposure being made in Germany in 1885 by Lehmann. He ordered his laboratory servant to stay for an hour in an enclosed room while vapourizing a volatile fluid and also using an analytical sampling device.⁶ As Henschler comments:

If the servant left the premises with significant signs of survival, the concentration was rated 'just tolerable for short term exposure.'⁷

Henschler maintained that the primitiveness of this test procedure should not detract from its achievement, it being the first report of a standard based on a quantitative approach.

In the United States the Threshold Limit Values of the American Conference of Government Industrial Hygienists (ACGIH) followed the earlier Maximum Allowable Concentrations (MACs). The ACGIH TLVs are used in many countries especially in the English speaking world. The USSR has developed its own standards, as did Germany in 1968, and more recently; Sweden and Holland. Efforts to form an international list have been unsuccessful to date but the advent of the European Community may speed that day. Refer to #5.9.

In New Zealand, perhaps, one could envisage a single regulation which contained a schedule containing a substantial list of threshold limit values (TLVs) or occupational exposure limits (OELs). Certainly lacking the resources necessary to undertake the research required, we have no option but to follow overseas practice. In view of our reliance on the ACGIH TLVs then clearly we should be attentive to the criticism of those TLVs and which criticisms are freely accepted by ACGIH itself.

13.5 THE CRITICISMS OF TLVS

As a past Chairman of ACGIH commented:

TLVs have never been intended to be adopted into legislation; that was clearly the view of ACGIH and has remained its view throughout the years. Furthermore, the ACGIH and its TLV Committee recognize that many TLVs are inadequate and suffer from lack of information. They really reflect a rather herculean effort by a volunteer group with fairly minimal resources, and they have offered very useful guidance to professionals.⁸

⁶ Henschler, D, Exposure Limits: History, Philosophy, Future Developments, (1985) 28 *Annals of Occupational Hygiene* 79-92, 80.

⁷ Henschler (1985) 80.

⁸ Lee, J S, Round Table 2: Discussion, (1989) 572 *Annals of the New York Academy of Sciences*, 107-109, 109.

Another criticism of the ACGIH TLVs is that they cover only about 500 substances whereas there are many thousands of chemicals and substances in daily use, though admittedly the use of many of those substances for which there are no TLVs, would be very limited. Thus those listed may well cover the bulk of the potential exposure. Important too, would be the accuracy of the monitoring of the workplace environment whether by sample or continuously.

Kinnersley, who is highly critical of the effectiveness of much government intervention, gives seven reasons "why the TLV concept should be viewed with suspicion", his major one being that:

It accepts industry's economic assumption that it's all right to expose workers to contamination. Some of the limits are based on nothing better than 'reasonable freedom from irritation, narcosis, nuisance or other forms of stress.'⁹

Where operations in industry expose workers to some degree of unavoidable risk then every endeavour must be made to ensure that harmful exposure does not occur. While, as has been pointed in #4.10, and is discussed later in this chapter, some questions can be raised over industry's contribution, nevertheless one can assume some integrity on the part of those volunteers to whom Lee, quoted above, refers and who help determine the TLV values. Finally Kinnersley comments:

It is clear that most workers are getting no protection from the TLV system. The whole idea is an uneasy compromise between what the more conscientious hygienists would like and what industry wants to be able to get away with. At no stage are workers asked what limits they would find acceptable -- even from the point of view of discomfort, let alone risk.¹⁰

Again such a wide-sweeping assertion, though easy to make and would not apply in every case, nevertheless the right of workers to be consulted and have their views heeded cannot be denied.

While Kinnersley includes some TLVs in the directory of toxic substances in his book acknowledging that they provide a starting point, he suggests no alternative other than to have zero contamination which he optimistically believes possible. Certainly few would accept his proposition that "most workers are getting no protection from the TLV system." Not surprisingly other writers that have some criticism of the TLV concept are more moderate in their comments.¹¹ All that appears to be suggested by Kinnersley as an alternative is to keep the air in the working environment completely free

⁹ Kinnersley, P. *The Hazards of Work* (1973) London: Pluto Press, 116.

¹⁰ Kinnersley (1973) 117.

¹¹ Stellman, J M & Daum, S M, *Work is Dangerous to your Health*, (1975) New York: Vintage Books.

of any contaminant and in suggesting that as a practical possibility, cites the case of ball bearing assembly plants which are sealed with the air being filtered to the standards of an operating theatre; a suggestion which few plant managers would consider feasible let alone economic.¹²

Kinnersley's comment predates the new British Occupational Exposure Limits, which set both control limits and recommended limits.¹³ The former of which must be strictly complied with. In 1987, control limits were listed for only 30 substances. However there are many similarities with the ACGIH TLVs in both control and recommended limits.

Other writers like Castleman and Ziem are also very critical of the Threshold Limit Values (TLVs) advocated by the American Conference of Government Industrial Hygienists (ACGIH). They criticize the lack of comprehensive documentation to back up the ACGIH TLVs as well as the undue influence industry representatives have played in setting those standards.¹⁴ Indeed it would seem that many standards have been set by the manufacturers themselves and they are obviously interested in keeping the level as high as possible. These factors are of vital interest to New Zealand for it is on these standards that we too rely, to determine the acceptable level of airborne toxins and other contaminants in the workplace.

Senior NIOSH officials as advisers to OSHA, advocated the generic approach as "a more timely" method than the substance by substance basis. They suggested that generic standards could be generated for:

... cholinesterase-inhibiting substances, neurotoxic agents, reproductive hazards, cold environments, and vibration syndrome to name but a few.¹⁵

They then commented that the substance-by-substance approach "often does not allow for the role of synergism." This aspect though important one in controlling work-related disease, as the officials point out, "has had little study."

¹² Kinnersley (1973) 118.

¹³ *Health and Safety Executive Guidance Note EH 40*, (1988) London: HSE. See also *The Control of Substances Hazardous to Health Regulations 1988* SI No 1637.

¹⁴ Castleman, B I, & Ziem, G E, Corporate Influence and the Threshold Limit Values, (1988) 13 *American Journal of Industrial Medicine*, 531-559, 554.

¹⁵ Lemen, R A, Mazzuckelli, L F, Niemeier, R W & Ahlers, H W, Occupational Safety and Health Standards. (1989) 572 *Annals of the New York Academy of Sciences*, 100-106, 104.

There remains, however, an area wide open to the gathering of data and subsequent research especially research which would confirm the integrity of the recommended levels. Accepting that the TLV approach is justified, a big question remains as to whether the current standards are being adequately observed. Certainly the ability of the Department of Labour to monitor exposures is very limited and much will depend on conscientious voluntary compliance as well as education and training. It is suggested that the promotion of this aspect deserves the greatest attention.

13.6 WHERE TLVS CAN BE USEFUL

Clearly any effort aimed at reducing and hopefully eliminating the amount of any harmful substance in the working environment is only to be welcomed. In these endeavours threshold limit values have played an important, if at times, a controversial role. What then have been some of those more arguable aspects and is there good reason for the questioning the existence of thresholds and thus the value of TLVs? Life is full of hazard, most of it man-made and a great deal of the material benefits that each of us enjoy in our daily round are only made possible because others have regularly faced considerable risks. One has only to think of the thousands of miners who have braved death and the possibility of debilitating disease in order that our forbears and we too, may enjoy the material benefits of warmth, food, and shelter, to say nothing of the more sophisticated products of modern industry. This raises that cornerstone of the Woodhouse Report – community responsibility. In the 1990s is it reasonable that the community should continue to enjoy the benefits of industry that can only be produced if our fellow beings continue to face such risks as they have in the past. In this we should not forget those less fortunate working in poorly regulated or even unregulated countries as evidenced on p 78. Clearly every endeavour must be made to ensure that potentially lethal exposure to hazardous substances is entirely limited. This must include a consideration of any policy of accepting products that have been produced in third world countries at a considerable cost in illness and death. This would assist the objectives of the ILO Conventions as discussed in Chapter 5.

13.7 LIMITATIONS OF TLVs

Apart from any question of a TLV's validity, the most obvious limitation of TLVs, there remains the extent and adequacy of the monitoring of any exposure to a contaminant. The part that epidemiology and bioassays play has been referred to earlier in #4.6 and #4.7 and is very relevant to any consideration of TLVs. Despite the considerable criticism that has been cast on the value of TLVs, Henschler gives a sense of reality maintaining that presently there is no preferable alternative despite their inherent

inadequacies.¹⁶ He considers that we have to live with TLVs for some part of the foreseeable future. Lacking adequate evaluation of existing occupational toxins, serious efforts to increase research activities, both at the quantitative and the qualitative level are needed.

Henschler emphasised a number of important points such as the difference between substances where the toxic effect is reversible and those which cause cell damage and necrosis of individual cells. After commenting on the problems of relying on animal tests he suggests that the more we learn about the effect of species differences through increasing testing the "better our extrapolation from animals to humans will be, and the more reliable our predictions will become."¹⁷ Other matters commented upon were the problems of reliance on time-weighted averages and that of mixtures of more than one chemical.

Henschler concluded:

There always has been unanimous agreement in the scientific community that the creation and evaluation of data relative to effects and thresholds are entirely scientific issues and have nothing to do with political or socio-economic parameters nor with technical feasibility. What differs from country to country is the degree to which scientists are ready to participate in the political decision process. Nourished by the above-mentioned inadequacies of the present system of standard setting and being further pressurized by the rapidly increasing numbers of newly introduced substances, a tendency for a steady strengthening of social and political influences can be foreseen. Up to now, we have been successful in trying to keep the business clean. Whether and how long this position can be held will depend mostly on the speed the extent with which scientific progress can fill the existing gaps and also on the natures of the persons engaged in these matters: persons who have to survive in a classical conflict situation between *Homo sapiens* and *Homo politicus*. Are our forces facing the compromise of unification?¹⁸

Henschler's warning certainly deserves our considered attention and underlined the importance of the issues raised in this thesis. As an example, even after the Goodrich deaths, the PVC industry in the United States opposed the setting of a lower TLV. Refer to Tafler's study reported on p 218.

16 Henschler (1985) 89.

17 Henschler (1985) 85.

18 Henschler (1985) 89.

13.8 A CASE HISTORY

Campbell and Hay demonstrate how a particular TLV has been developed as knowledge has been gained; that of vinyl chloride monomer:

1933 Acute effects identified -- narcotic effects noticed (people become drowsy)

Medical research into use as an anesthetic agent. This was discontinued when it was found to disturb the heart rhythm.

1962 Limit for air contamination (based on narcotic effects) set at 500 ppm.

1971 Research shows vinyl chloride affects: liver, bones, kidneys. TLV set at 200 ppm.

1974 B.F. Goodrich announces three of its workers have died of liver cancer (angiosarcoma).

1975 Health and Safety Executive reduces TLV to 25 ppm. (Feb)

1975 TLV reduced to 10 ppm. (Oct).

1978 TLV reduced to 5 ppm . . .

This illustrates the problems associated with the setting of hygiene limits; on the one hand the acute exposure is well documented and on the other the effects of chronic exposure are not noticed until years later.¹⁹

13.9 THE DOSE-RESPONSE RELATIONSHIP

In considering the applicability of TLVs, the response of the subject to a given dose becomes a matter of some importance. It is not too difficult to accept that, with a given increase in exposure to a contaminant, any effect from that exposure will increase. The question is, however, the relationship between the two; then there is the time factor; the length of exposure and the interval between exposures. Another confounding aspect which has not always been given its due weight, is the fact that

¹⁹ Campbell, I B & Hay D M Occupational Health in New Zealand: legislation, information and training, (1984) 48 *Chemistry in New Zealand* (5) 87-90, 89.

some conditions including cancer may arise as a result of exposure to more than one substance. Smoking is the most obvious example where the effect of reduced lung function caused by smoking compounds the problem. Furthermore with widely varying degrees of individual susceptibility, TLVs may give a false sense of security. As might be expected asbestos in its various forms has been the subject of a great deal of study. However it is clear that, though past exposures in some workplaces have been of a very high order, they were such that would be rarely, if ever, repeated in today's industry.

It is interesting to recall the latest research from a very extensive programme which monitored a cohort of 17,800 insulation and asbestos workers in the United States and Canada since 1967. Seidman and Selikoff report:

By examining data over three time periods during which asbestos exposure declined, we obtained data indicating that reduction in exposure was associated with an observable decrease in mortality ... even among workers exposed for 20 or more years.²⁰

There was, however, no reduction in the rates for pleural mesothelioma.

13.10 THE CURRENT NEW ZEALAND SITUATION

Except for asbestos or chromic mist, New Zealand has not promulgated TLVs or their equivalent in any regulations.²¹ However the Health Department have regularly published a volume entitled *Workplace Exposure Standards for New Zealand* which set out TLVs for chemical substances in the work environment adopted by the ACGIH together with some additional New Zealand variations. This responsibility has now been assumed by the Department of Labour. Though these TLVs have no legal backing they are used by the Department of Labour to assess whether or not an undertaking complies with the requirements of s 36 of the Factories and Commercial Premises Act 1981. That section requires an occupier to "... take all practicable steps to see that the workers are protected against inhalation of ... steam, fume, dust, or impurity ..." [emphasis added] It would be preferable if the TLVs were incorporated in a regulation to give them more formal recognition. No doubt the problem presented by regular reviews of the levels as instanced by their annual publication by the Department of Health may be a difficulty. It would be possible for the current publication to be incorporated as a schedule to a regulation with the schedule in its entirety being gazetted annually or as otherwise needed.

²⁰ Seidman, H & Selikoff, I J, Decline in Death Rates among Asbestos Insulation Workers 1967-1986 with Diminution of Work Exposure to Asbestos, (1990) 609 *Annals of the New York Academy of Sciences*, 300-318, 300.

²¹ Asbestos Regulations 1983 and Electroplating Regulating Regulations 1950.

The current New Zealand legislation calls for the most minimal precautions judged by the best international standards such as the legislation of countries such as Finland, Canada and Sweden and also ILO *Convention 155* and *Recommendation 164*. Section 36 of Factories and Commercial Premises Act 1981 quoted above while calling for protection against "inhalation" but seemingly ignores the possibility of skin contact or ingestion.

There are other standards set by specific regulations, for example:

Electroplating Regulations 1950

Radiation Protection Regulations 1982

Asbestos Regulations 1983

13.11 PROPOSED NEW ZEALAND REGULATIONS

Circulating for comment since 1989 is a concept document prepared by the Department of Labour entitled *Management of Substances Hazardous to Health Regulations*. (MOSH) The objective is to "take a pro-active approach to hazardous substance management."²² The major provisions of the draft document are requirements that an employer must:

- (a) make an inventory of substances hazardous to health present;
- (b) assess worker exposure to these substances in the work environment;
- (c) reduce worker exposure to the lowest practicable level.

Other requirements are set out in the draft regulation in greater detail and include:

- 1 The power for the Department to prohibit or place restrictions on the use of substances.
- 2 Employers to carry out an audit before an employee is exposed to any hazardous substance covering methods, procedures, levels of exposure, control measures, provisions for an emergency, etc.
- 3 Employees to be informed of the result of any audit and records to be kept for 10 years.
- 4 Auditor to be qualified by training or experience.
- 5 Institute control measures.
- 6 Ensure adequate personal protection;
- 7 Monitor exposure.

²² *Management of Substances Hazardous to Health Regulations : Concept Document*, (1989) Wellington: Department of Labour, Mimeo.

- 8 Provide material safety data sheets.
- 9 Ensure medical surveillance of workers where necessary with medical records to be kept for a minimum period of 30 years.
- 10 Provide workers with adequate information, instruction and training.

The need for such regulations has been well demonstrated in the recommendations of the committee that examined the health effects of the ICI fire. While the committee, as required on its terms of reference, was concentrating on the health effects of the fire, nevertheless it did comment:

... the whole question needs to be addressed in the context of the Resource Management Bill and the expected Occupational Safety and Health Bill: it is particularly important that the introduction of compulsory HAZCHEM labelling is not deferred.²³

All of which serves as a clear indicator that an immediate move to institute substantial improvements to the regulation of the health effects of the working environment is a matter of prime importance.

Lyndon in referring to the limited data distribution from both and private sources commented:

Present levels of data production are insufficient to meet the needs of a variety of uses. For instance, because of the absence of information about chemical exposures that might otherwise explain symptoms, doctors have to use risky or harmful diagnostic procedures and remedies.²⁴

She then quotes Robins of the Harvard School of Public Health as estimating:

... more than half the time spent by occupational health professionals evaluating patients suspected of being ill from chemical exposure is devoted to tracking down the names of chemicals for which the worker can give only the brand name.²⁵

It is most probable that if workers and their supervisors were given adequate information in the first place, subsequently there would be less problems for the health professionals.

13.12 THE WORKPLACE AND THE ENVIRONMENT

It is questionable whether it is appropriate to separate the control of the environmental hazards from those of the workplace. Compared with control systems in force in some other countries, the position in

²³ *Health Consequences of the ICI Fire*, Report to the Minister of Health, (1990) Wellington: Govt Printer, 112.

²⁴ Lyndon, M L, Information Economics and Chemical Toxicity: Designing Laws to Produce and use Data, (1989) 87 *Michigan Law Review*, 1795-1861, 1806.

²⁵ Lyndon (1989) 1807.

New Zealand leaves much to be desired. There is the initial problem of a division of responsibility for occupational hazards between a number of authorities. However even the introduction of a single Occupational Health and Safety Act and an amalgamation of the various enforcement inspectorates, together with the proposed Hazards Control Commission, will not completely solve all the problems. In the matter of product safety and other public health related issues, there are challenges which may also affect the working environment. In these issues public apprehension can also play an important role. Many of the health hazards of the workplace also affect the general environment. Today as never before environmental issues are causing increasing concern in the community. The considerable growth in the use of chemicals both in the workplace and elsewhere adds to the public perception that a substantial problem exists.

While it is common practice to consider the working environment as something apart from the general environment, such a view cannot be justified. One has only consider the harm that has been done to the environment by industry with the discharge of toxins into our atmosphere, seas, rivers and lakes together with such other problems as the safe disposal of hazardous waste.

Similarly regulatory efforts in most countries have tended to regard the workplace and the environment and their problems as quite separate activities. It is not surprising, therefore, to find that in the United States the major regulatory bodies; OSHA, the Environmental Protection Agency (EPA), the Consumer Products Safety Commission (CPSC) and the Food and Drug Administration (FDA) found it necessary to form an Interagency Regulatory Liaison Group (IRLG) " ... to develop a common set of risk-assessment principles."²⁶ Differing standards have often been set by the separate bodies; this on the basis that the degree of exposure from environmental pollution can be less concentrated than that in many workplaces. Additionally, in the environment, the time over which exposure may occur could often be the most important factor.

13.13 THE ASBESTOS INQUIRY

An Asbestos Advisory Committee was established in 1990 as an ad hoc body to report on issues relating to the health effects and use of asbestos in New Zealand including the adequacy of controls and legislation and clarification of the legal entitlements available for affected workers.

²⁶ Latin, H A, Good Science, Bad Regulation, and Toxic Risk Assessment, (1988) 5 *Yale Journal on Regulation*, 89-148, 96.

One important recommendation in the report was that there should be an Asbestos Register as part of a National Occupational Health Information System with its operation being the responsibility of the Occupational Safety and Health Service of the Department of Labour (OSH). The register would cover -- those notified as having been exposed to asbestos, and those as having asbestos-related disease. Along with that recommendation was that there be also established a National Asbestos Panel and a National Asbestos Radiological Panel.

There is a need for a wider view to be taken with the register being expanded to embrace other toxic substances and the extensive use of agricultural chemicals comes to mind.

13.14 IMPLICATIONS FOR NEW ZEALAND

Issues raised in this chapter go to the very heart of the problem. The control of hazardous exposure through the use of a putative scientific standard of acceptance -- the TLV -- raises serious questions. Firstly there is validity of the standards and the integrity of their determination. New Zealand is ill prepared to question the basis on which those standards have been set. One must then ask whether there is a real effort to maintain those standards in our workplaces and which in some cases would require continuous monitoring rather than occasional sampling. Then the recommendations in the report of the asbestos inquiry need to be viewed in a wider light, raising the possibility of a register encompassing all workers whose work exposes them to hazardous substances. This is a matter that needs to be studied when the proposed *Management of Substances Hazardous to Health Regulations* are being further considered.

There is a clear need for New Zealand to have the resources so that we are well informed on overseas research and other developments apart from monitoring the introduction of new technology in New Zealand as well as existing activity. The creation of a small but adequately staffed and resourced Institute would be the most effective way of controlling the manufacture, importing, transport, storage and use of hazardous substances.

The relation between the workplace and the general environment needs to be given a lot more attention before the proposal to set up a separate Hazards Control Commission is proceeded with. Probably the greatest challenge will lie in the dearth of suitably qualified persons to undertake the task of both monitoring the workplace and the environment in general.

PART VI

POSSIBILITIES FOR ACTION

CHAPTER 14

WHITHER REGULATION?

14.1 THE BASIS FOR IMPROVED CONTROL OF WORKPLACE HEALTH HAZARDS

The many conclusions that flow from this study indicate that the objective embarked upon is a daunting one. Firstly the extent of the problem is unknown and though much more can be done to improve our present knowledge, a substantial gap will always remain. It can take a long time to establish that a substance has a potential for harm and even longer to assess its probable extent. To clear a substance of any suspicion of toxicity may be even more difficult. With many new chemicals being added each year, we appear to be running a losing race. In other words apart from the tremendous backlog of potential toxic substances that have yet to be classified, ~~assessed~~, new substances are being produced at a faster rate than the scientific world has the capacity with which to cope. The magnitude of the problem makes it essential that Government ensures adequate protection is provided for the workforce. Industry simply does not have the capacity to cope on its own.

A prime contention of this thesis is that effective regulation must not be viewed merely as providing enforcement alone. It must set the scene to ensure that the hazards not subject to regulation are also attended to. It is suggested that this can only be achieved if the management system includes all the essentials of a sound occupational health and safety policy which is an integral part of the whole management organisation; not merely an appendage. There is also an urgent need to create an atmosphere of mutual trust and confidence and this can best be engendered through the participative approach. As advocated in #9.12 this approach also provides the means to pursue more effectively those preventive measures which, though highly desirable, are not prescribed by regulation. Achieving these objectives could have benefits well beyond the sphere of occupational health and safety. Unions too, can play a vital role in reaching a better understanding if not rendered impotent by changes in legislation which may substantially reduce their ability to influence.

14.2 THE NEED FOR MORE ADEQUATE DATA

It has been amply demonstrated that in New Zealand we have an inadequate appreciation of the nature and extent of the problem of occupational and work-related disease. The conclusions in #3.19 and #4.15 summarise the needs. Today, as never before, the community is becoming acutely aware of the threats to health in the total environment, many of which have their origin in the workplace. To some extent it could be claimed that the pendulum is beginning to swing too far the other way with unnecessary concerns being generated. However we view it, complacency at one end of the scale and unnecessary concern at the other, both are engendered by the same inadequate lack of information or where to get that which is often available, even if with some difficulty. Government departments and agencies such as ACC must show the way. Despite the pretence of our having a more open government, the reality is that the information being provided in departmental reports has been curtailed substantially and in many instances vital data can only be obtained if it is paid for.

The recommendations that disease and hazard surveillance be linked deserves greatest consideration. This will not only require adequate resources but a great deal of co-operation between the agencies concerned, the Health Department, area health boards, the Labour Department and ACC.

Another matter which has been studied is that of cost-benefit analysis. In the light of available data in New Zealand it is hardly likely that adequate decisions could be made other than on the most elementary basis. The conclusions reached in Chapter 12 are even more relevant to New Zealand than the other countries where this topic has been more widely aired. It is not that such an analysis is not desirable but its practicality is very questionable.

14.3 INTERNATIONAL INFLUENCES

Without doubt one of the more important documents to appear recently, has been ILO *Convention 155* with its accompanying *Recommendation 164* concerning occupational health and safety and the working environment. Yet that Convention has attracted little attention or comment on the New Zealand scene. Now we have further indications of innovative approaches from the European Community which is taking steps to adopt common standards by 1 January 1993. The failure of New Zealand to ratify so many conventions relating to occupational health and safety mirrors, the prevailing apathy towards progress. If there are only a few minor deficiencies of our legislation which may preclude ratification, one may well question why the necessary amendments are not made to enable that to be done. However in some cases more major changes may be needed but that, in itself, clearly indicates that the existing

legislation is outmoded. New Zealand should not be content with standards less demanding than those that are internationally recognised.

14.4 THE PHILOSOPHY AND EFFECTIVENESS OF REGULATION

These two aspects are closely related and in Chapters 7 and 8 the objective and effectiveness of regulation have been examined. Much of the opposition to more extensive regulation stems from inherent prejudices that originate in many instances from a lack of understanding of the factors involved. The link between the management system and occupational health and safety is not universally appreciated and aspects such as the complexity of causation, the tendency to "blame the victim" all contribute to an unwillingness to move to a more participative approach. The need for a strong well-resourced enforcement agency that is respected by both management and labour has, it is submitted been well demonstrated. While some research on the effectiveness of regulation is more than a little disappointing, nevertheless any deficiency often lies in the approach taken and, it is suggested, there are clear indications that given a change in direction much can be achieved. The differing needs and often diverse views of management, labour and the enforcers can be counter-productive to progress. There is therefore much to be said for the creation of an Occupational Health and Safety Commission as advocated by ACOSH and commented on in #7.4.

14.5 TRAINING, EDUCATION AND INFORMATION

While in recent years there has been a considerable growth in the number of persons with an adequate knowledge of occupational health, there are still many gaps. Probably the greatest need lies in the ranks of management. As most managers cannot be expected to attend even short courses, and seminars have decided limitations, some other approach is necessary. As far as management is concerned it is suggested that greater use should be made of trade organisations as a means of bringing important facts to their attention. With the considerable increase in technology, it is essential that the staff of the enforcement agency have adequate training especially in the health hazards of the workplace.

With the growth of trade union education especially under the aegis of the Trade Union Education Authority (TUEA) a great opportunity exists to further the knowledge of rank and file workers. Unfortunately the lack of enthusiasm of many employers for trade union education remains a stumbling block though it is highly likely that many employees would be more attentive to information and material coming from their own organisation. The situation could well change following the review of TUEA that is currently being undertaken. After all it is the hazards of the employers' undertakings that are creating any problem that may exist.

14.5 COMPENSATION FACTORS

It must be admitted that work-related disease raises an issue of considerable complexity for compensation authorities. A single compensation authority, as in New Zealand, is in a considerably more favourable position than in countries where there may be individual insurers. In New Zealand, though ACC may face the same problems as elsewhere, there is no reason why it cannot ensure that every endeavour is made to determine whether or not a claimant's condition is work-related before it is declined. There is no reason why there should not be perfect openness as to the available medical and other evidence that ACC may receive. While a claimant will usually have neither the resources nor the ability to pursue the necessary enquiries, this makes it essential that ACC should conduct a full and frank enquiry in an "inquisitorial" manner. Not only will that help determine whether there is an entitlement to compensation but also whether preventive measures should be taken.

14.6 THE NEED FOR OCCUPATIONAL HEALTH SERVICES

Regrettably #2.7 records the decline in occupational health services that were developed in New Zealand with the Health Department working in partnership with the Workers' Compensation Board. This is all the more regrettable when ILO *Convention 161* and *Recommendation 171* mentioned in #5.7 are considered. Admittedly much of the work undertaken by the occupational health centres was concerned with traumatic injury, with greater emphasis on occupational health hazards much could be achieved, not the least would be the education not only of the local workforce and its management but also the general practitioners in the area.

14.7 LESSONS FROM HISTORY

Perhaps the greatest lesson from history is that the regulation of occupational health and safety is not viewed as a matter of primary interest or concern, especially on the part of the body politic. From the last century until the last two decades New Zealand has tended merely to follow British legislation in matters of occupational health and safety albeit frequently a little belatedly. That this is no longer the most favoured course of action, it is suggested could be due in part to changes in our cultural, diplomatic and trade ties. This combined with a much greater tendency for New Zealand to develop its own more individualistic culture. Regrettably this has, at times, generated a tendency to complacency. Unfortunately there is an inclination for many to think that, with New Zealand being a small country, systems adopted in the large industrial nations have no relevance here. In all countries large and small, it is the small undertakings that predominate.

Calls for New Zealand to heed the changes that have taken place elsewhere, have failed to influence those who have been in a position to determine action. Thus a primary task must be to raise the level of awareness of the problems that exist on the part of both employers and workers, unions, bureaucrats and politicians. This is particularly applicable with the health problems of the working environment.

14.8 THE NEED FOR A NATIONAL OCCUPATIONAL/PUBLIC HEALTH INSTITUTE

Being largely dependent on overseas research and information from overseas agencies and suppliers, there is a clear need for the enforcement agency to have adequate scientifically-qualified staff to monitor overseas research and other developments apart from gathering data about New Zealand conditions. Bearing in mind the limited resources of the country in both finance and qualified scientists and the close link between many environmental health problems and those of the workplace, it seems highly desirable to resurrect Dr Davidson's proposal made nearly 50 years ago for that Institute of Public Health.

Apart from controlling the transport, storage and use of hazardous substances, such a body would be able to undertake many necessary tasks, such as monitoring the introduction of new substances, the suitability of existing or proposed TLVs.

Part XIII of the Resource Management Act 1991 provides for the establishment of a Hazards Control Commission. It does seem undesirable to have more than one such body but up to the present there has been no intention to create an institute as recommended in the ACOSH proposals. The whole question of regulation and control of hazardous substances needs much more consideration by the government. Such a body could undoubtedly be the most vital factor in reducing the incidence of work-related disease in the country.

14.9 EFFECTIVE MODES OF DETERRENCE

It is suggested that, accepting that all regulation must contain provisions for sanctions to be applied, nevertheless undue reliance on that alone could be a recipe for disaster. This, on the grounds that if the desired change is only gained through fear of the result of non-compliance, in the long term, that is not good motivation. The recent White Paper on Accident Compensation not only accepts that experience rating should be adopted but also infers that they will produce the necessary improvement in the accident rate by "sending the right signals." Clearly with respect to health hazards such an assertion is merely wishful thinking and quite unjustified.

The 1990 Occupational Safety and Health Bill proposed maximum penalties substantially higher than those in the Factories and Commercial Premises Act 1981 but when the intervening inflation over the last 10 years is considered the increase is hardly substantial. That relating to imprisonment was only to be increased from 6 months to a year. As suggested by Barnum and Gleason in #11.2 any penalty imposed should be greater than the cost of compliance. Though few would dispute the need for heavy penalties to be applied in appropriate circumstances, opinions would differ widely about their potential influence as a deterrent. Even more importantly their major defect is that they almost invariably involve action after the event. The Law Commission's recommendation of targeting "observed conditions" should get serious consideration. The procedure being followed in some Canadian provinces should be investigated as well as the more recent moves by OSHA in the United States. Nevertheless, except in the most serious cases, there is good reason to consider sanctions as the last option when prohibition and improvement notices have not produced the desired result.

Other approaches such as experience rating, relying on market forces, an injury tax and resumption of tort liability have been examined and discarded. There remains the question of manslaughter charges in appropriate circumstances, which has been fully discussed in #11.13. Though such an approach presents considerable problems nevertheless, as a matter of principle, it is difficult to justify any differentiation between work-related diseases and injuries and those that arise in other circumstances such as injuries on the highway. As the occasions where this would be appropriate would be very few, its effect as a deterrent would be minimal.

14.10 COMMUNITY RESPONSIBILITY

Here the words of the Woodhouse Royal Commission deserve repeating:

This first principle [community responsibility] is fundamental. It rests on a double argument. Just as modern society benefits from the productive work of its citizens, so should society accept responsibility for those willing to work but prevented from doing so by physical incapacity. And, since we all persist in following community activities, which year by year exact a predictable and inevitable price in bodily injury, so should we all share in sustaining those who become the random but statistically necessary victims. The inherent cost of these community purposes should be borne on a basis of equity by the community.¹

¹ *Compensation for Personal Injury in New Zealand: Report of the Royal Commission of Inquiry*, (The Woodhouse Report) (1967). Wellington: Govt Printer. 40.

While the Report was substantially concerned with compensation, nevertheless it was firm on the need for greater action in the fields of both prevention and rehabilitation. Unfortunately those hopes have not been fully achieved.

While it is essential that all employers be attentive to every item of cost in the running of their establishments and no more so than today, nevertheless there is that other constituency, the community. A hundred years ago the Rev Rutherford Wardell's outspoken sermon on the "Sin of Cheapness" ultimately led to the first Factories Act, and today one could well ask where are the modern-day Wardells who could stir the conscience on the community of the toll and, even more, the potential toll of the health hazards that are to be found today in our workplaces and the environment. Are we to continue to be slaves to ever-increasing doses of the user-pays market-driven economy or be more caring of the health of our fellow citizens.

As Gaskins commented:

The community responsibility principle now requires another look, however, in light of epidemiological methods of connecting environmental forces with many kinds of disease. Indeed, it is much easier to apply the central argument in the Woodhouse Report to the new problems of environmental disease, where scientific evidence and ordinary custom prevent us from reducing events to purely individualized level of causation.²

14.11 CONCLUSIONS

All the evidence points to the participative approach as being the most effective way to bring together all the elements in the workplace so that they all can work together for the common good. This also needs to be combined with an effective management system that recognises the importance of occupational health and safety. All this combined with total quality control. Unfortunately there are still a significant number in management circles who cannot accept that view. It is therefore important to appreciate why long-standing convictions still persist and there is an urgent need to develop strategies to counter such views. Nullifying the views that arise from a lack of understanding of the underlying causation of injury and disease combined with the tendency to blame the victim are a matter of priority.

Without adequate statistical data to guide us any action taken could be misdirected. Then there is a need for established facts about occupational and work-related disease to be more widely recognised.

² Gaskins, R H, *Environmental Accidents: Personal Injury and Public Responsibility*, (1989) Philadelphia: Temple University Press, 337.

Here it would be logical to harness all possible means and organisations. Today there is a great deal more appreciation of the need for injury prevention than there was 40 years ago, even if there remains much more to do. That growth in knowledge has been due to many influences, influences which can still be more effectively harnessed. What is needed is an authoritative body that has the prestige and the ability to ensure that the potential of the industrial community can be encouraged to play a much more effective part than we see today, embodying all that the participative approach has to offer; the Commission suggested by ACOSH. That along with the Institute as recommended would ensure a better informed industrial community.

APPENDIX I

AGRICULTURAL WORKERS' ACT 1977

ANIMAL REMEDIES ACT 1967

REGULATIONS

The Animal Remedies Regulations 1980, SR 1980/145

BOILERS, LIFTS AND CRANES ACT 1950

REGULATIONS

Boilers and Machinery Exemption Order 1983, SR 1983/89

Boilers (Gas Pipelines) Exemption Order 1969, SR 1969/6

Boilers, Lifts and Cranes Exemption Order 1983, SR 1983/89

Boilers, Lifts and Cranes Notice 1983, SR 1983/90.

Boilers, Lifts and Cranes (Fees) Regulations 1990, SR 1990/321

Boilers, Lifts and Cranes Notice 1990, SR 1990/174

Cranes Exemption Order 1966, SR 1966/207

Engine Drivers' Examinations Regulations 1952, SR 1952/149

Inspection of Boilers Regulations 1959, SR 1959/116

BUSH WORKERS ACT 1945

CIVIL AVIATION ACT 1964

REGULATIONS

Civil Aviation Regulations 1953, SR/100

Civil Aviation (Accident Investigation) Regulations 1978, SR/112

Civil Aviation Charges Regulations 1991, SR 1991/25

CLEAN AIR ACT 1972

REGULATIONS

Clean Air (Licensing) Regulations 1973, SR 1973/303

Clean Air Act Schedules Order 1982, SR 1982/278

Clean Air Zones (Canterbury Region) Order 1984, SR 1984/81

Clean Air (Smoke) Regulations 1975, SR 1975/52
 Clean Air Zone (Christchurch) Order 1977, SR 1977/172

COAL MINES ACT 1979

REGULATIONS

Coal Mines (Licensing) Regulations 1980, SR 1980/50
 Coal Mines (Electrical) Regulations 1980, SR 1980/51
 Coal Mines (Mine Management and Safety) Regulations 1980, SR 1980/116
 Coal Mines (Open Cast Coal Mines) Regulations 1986, SR 1986/277
 Coal Mines (Coal Research Association Levy) Order 1980, SR 1980/52
 Coal Mines (Union Membership) Regulations 1985, SR 1985/157
 Coal Mines (Coal Mining Industry Welfare Fund Levy) Order 1984, SR 1984/340.

CONSTRUCTION ACT 1959

REGULATIONS

Asbestos Regulations 1983, SR 1983/70
 Asbestos Dust (Concentration of Fibres) Notice 1984, SR 1984/30
 Construction Regulations 1961, SR 1961/5

CODES OF PRACTICE

Blasting,
 Compressed Air,
 Cranes and Lifting Practice,
 Excavation,
 Power Operated Elevating Work Platforms,
 Rigging.
 Roll Over Protective Structures for Earth Moving Machines
 Scaffolding,
 Underwater Diving,
 Work in Compressed Air

DANGEROUS GOODS ACT 1974

REGULATIONS

Dangerous Goods Regulations 1958, SR 1958/76
 Dangerous Goods (Labelling) Regulations 1978, SR 1978/305
 Dangerous Goods Order 1987, SR 1987/74
 Dangerous Goods (Class 2 Gases) Regulations 1980, SR 1980/46
 Dangerous Goods (Class 3 Class 3 Flammable Liquids) Regulations 1985, SR 1985/170
 Dangerous Goods (Licensing Fees) Regulations 1976, SR 1976/189
 Dangerous Goods (Class 4 Flammable Solids or Substances and Class 5 Oxidising Substances) Regulations 1985, SR 1985/170

ELECTRICITY ACT 1968**REGULATIONS**

Electrical Supply Regulations 1984, SR 1984/167

Electrical Wiring Regulations 1976, SR 1976/38

ELECTRIC LINEMEN ACT 1959**REGULATIONS**

Electric Linemen Regulations 1960, SR 1960/154

ELECTRICAL REGISTRATION ACT 1970**REGULATIONS**

Electrical Registration Regulations 1980, SR 1980/225.

EXPLOSIVES ACT 1957**REGULATIONS**

Explosives Regulations 1959, SR 1959/126

Explosives Authorisation Order 1983, SR 1983/212

Explosives (Fireworks) Order 1990, SR 1990/34

FACTORIES AND COMMERCIAL PREMISES ACT 1981**REGULATIONS**

Abrasive Blasting Regulations 1958, SR 1958/121

Asbestos Regulations 1983, SR 1983/70

Asbestos Dust (Concentration of Fibres) Notice 1984, SR 1984/30

Electroplating Regulations 1950, SR 1950/173

Factories and Commercial Premises Regulations 1981, SR 1981/323

Factories and Commercial Premises (First Aid) Regulations 1985, SR 1985/188

Lead Process Regulations 1950, SR 1950/172

Noxious Substances Regulations 1954, SR 1954/128

Spray Coating Regulations 1962, SR 1982/54

Repeal of Section 13 of the Factories and Commercial Premises Act 1981 1982, SR 1982/73

CODES OF PRACTICE

Fork-lift Truck Operators,

Icing and Cocoa Milling,

Joint Management-Labour Health and Safety Committees, Workers' Health and Safety Representatives,
 Photo Engraving and Lithographic Processes,
 Power Operated Working Platforms,
 Safe Use of Isocyanates,
 Safe Use of Molten Salt Baths
 Safety and Health in the Manufacture of Paint, Printing Ink and Resins
 Safety in Aerosol Manufacture,
 Spraying of Electrostatic Powder Coatings,
 Safety in Timber Treatment,
 Vapour Degreasing.
 Visual Display Units

FIRE SERVICE ACT 1975

REGULATIONS

Fire Safety (Evacuation of a Buildings) Regulations 1970, SR 1970/42.
 Fire Services Code of Practice Regulations 1965, SR 1965/30
 Fireguards Regulations 1958, SR 1958/21

GAS ACT 1982

REGULATIONS

Gas Industry Regulations 1984, SR 1984/246.

GEO THERMAL ENERGY ACT 1950

REGULATIONS+

Geothermal Energy Regulations 1961, SR 1961/124

HARBOURS ACT 1950

REGULATIONS

General Harbour (Safe Working Load) Regulations 1982, SR 1982/30
 General Harbour (Ship, Cargo and Dock Safety) Regulations 1968, SR 1968/240
 General Harbour (Nautical and Miscellaneous) Regulations 1968, SR/239.

HEALTH ACT 1956

REGULATIONS

Anthrax Prevention Regulations 1951, SR 1951/259
 Asbestos Regulations 1983, SR 1983/70
 Asbestos Dust (Concentration of Fibres) Notice 1984, SR 1984/30

Electroplating Regulations 1950, SR 1950/170
 Fire Extinguishers Regulations 1958, SR 1958/148
 Fireguards Regulations 1958, SR 1958/21.
 Fumigation Regulations 1967, SR 1967/213
 Lead Process Regulations 1950, SR 1950/172
 Noxious Substances Regulations 1954, SR 1954/128
 Spray Coating Regulations 1962, SR 1962/54
 Health (Diseases Communicated by Animals) Regulations 1963, SR 1963/167

OCCUPATIONAL HEALTH GUIDELINES

Control of Lead at Work
Health and Safety in the Electroplating Industry
Use of Formaldehyde and Similar Products at Work
Soldering in the Electronics Industry
Asthmatic Syndrome in Aluminium Pot Room Workers
Biological Monitoring of Organophosphate Pesticide Exposure
Spray Painting in Ships
Work in Foundries

HOVERCRAFT ACT 1971

MACHINERY ACT 1950

REGULATIONS

Amusement Devices Regulations 1978, SR 1978/294
Tractor Safety Frame Regulations 1986, SR 1986/229
Woodworking Machinery Regulations 1973, SR 1973/85

CODES OF PRACTICE

Training Operators of Powered Industrial Lift Trucks
Forklift Trucks Safety Code for Operators
 1 **Front Loading Forklift trucks**
 2 **Order Pickers**
 3 **Side Loaders**
 4 **Straddle Trucks**
Roll-Over Protection for Earth Moving Machinery

MINING ACT 1971

REGULATIONS

Mining Regulations 1981, SR 1981/347
Mining (Safety) Regulations 1973, SR 1973/82

PESTICIDES ACT 1979**REGULATIONS**

Pesticides Regulations 1983, SR 1983/14

Pesticides (Bacterial and Fungal Preparations) Order 1984, SR 1984/215

Pesticides (Vertebrate Pest Control) Regulations, SR 1983/16

PETROLEUM ACT 1935**REGULATIONS**

Petroleum Regulations 1978, SR 1978/255

Petroleum Pipelines Regulations 1984, SR 1984/114

PLUMBERS, GASFITTERS AND DRAINLAYERS ACT 1976**REGULATIONS**

Plumbers, Gasfitters and Drainlayers Regulations 1977, SR 1977/67

Drainage and Plumbing Regulations 1978, SR 1978/127.

QUARRIES AND TUNNELS ACT 1982**REGULATIONS**

Quarries Regulations 1983, SR 1983/39

Tunnels Regulations 1983, SR 1983/40

RADIATION PROTECTION ACT 1965**REGULATIONS**

Radiation Protection Regulations 1982, SR 1982/72

Radiation Protection (Appeals) Regulations 1974, SR 1974/319

SHIPPING AND SEAMAN ACT 1952**REGULATIONS**

Shipping (Dangerous Goods) Rules 1979, SR

International Convention for the Safety of Life at Sea 1950, SR 1950/157,

Load Line Rules 1970, SR 1970/71

Shipping (Distress Signals and Prevention of Collisions Regulations 1988, SR 1988/19

There a number of other regulations covering such subjects as Anchors and Cables, Ship Construction, Qualifications for Officers and Crew, Safety Equipment.

TOXIC SUBSTANCES ACT 1979**REGULATIONS**

Toxic Substances Regulations 1983, SR 1983/130

Poisons Regulations 1964, SR 1964/64

Deadly Poisons Regulations 1960, SR 1960/131

Poison Licenses Regulations 1961, SR 1961/39

Selenium Control Regulations 1959, SR 1959/202

TRANSPORT ACT 1962**REGULATIONS**

Transport (Breath Tests) Notice 1978, SR 1978/310

Transport (Childhood Restraints and Seat Belts Approval) Notice 1984, SR 1984/171

Transport (Demerit Points) Regulations 1985, SR 1985/100

Transport (Overloading of Vehicles) Notice 1985, SR 1985/98

Transport (Measurement of Weight) Notice 1974, SR /1974/222

APPENDIX II

INTERNATIONAL LABOUR ORGANISATION

CONVENTION 155

Article 4 of the Convention provided:

- 1 Each member shall, in the light of national conditions and practice, and in consultation with the most representative organisations of employers and workers, formulate, implement and periodically review a coherent national policy on occupational safety, occupational health and the working environment.
- 2 The aim of the policy shall be to prevent accidents and injury to health arising out of, linked with or occurring in the course of work, by minimizing, so far as is reasonably practicable, the causes of hazards inherent in the working environment.

Article 5

The policy referred to in Article 4 of this Convention shall take account of the following main spheres of action in so far as they affect occupational safety and health and the working environment:

- (a) design, testing, choice, substitution, installation, arrangement, use and maintenance of the material elements of work (workplaces, working environment, tools, machinery and equipment, chemical, physical and biological substances and agents, work processes);
- (b) relationships between the material elements of work and the persons who carry out or supervise the work, and adaptation of machinery, equipment, working time, organisation of work and work processes to the physical and mental capacities of the workers;
- (c) training, including necessary further training, qualifications and motivations of persons involved, in one capacity or another, in the achievement of adequate levels of safety and health;
- (d) communication and co-operation at the levels of the working group and the undertaking and at all other appropriate levels up to and including the national level;
- (e) the protection of workers and their representatives from disciplinary measures as a result of actions properly taken by them in conformity with the policy referred to in Article 4 of this Convention;

Article 6

The formulation of the policy referred to in Article 4 of this Convention shall indicate the respective functions and responsibilities in respect of occupational safety and health and the working environment of public authorities, employers, workers and others, taking account both of the complementary character of such responsibilities and of national conditions and practice.

Article 8

Each member shall, by laws or regulations or any other method consistent with national conditions and practice and in consultation with the representative organisations of employers and workers concerned, take such steps as may be necessary to give effect to Article 4 of this Convention.

Article 9

- (1) The enforcement of laws and regulations concerning occupational safety and health and the working environment shall be secured by an adequate and appropriate system of inspection.
- (2) The enforcement system shall provide for adequate penalties for violations of the laws and the regulations.

Article 13

A worker who has removed himself from a work situation which he has reasonable justification to believe presents an imminent and serious danger to his life or health shall be protected from undue consequences in accordance with national conditions and practice.

There are many other interesting provisions too numerous to mention here such as the inclusion of health and safety and the working environment at all levels of education and training, including those of the higher technical, medical, and professional institutes, provision for adequate statistics, emphasising co-operation at the workplace, adequate training for workers, supply of adequate information, etc.

RECOMMENDATION 164

Paragraph 12 of *Recommendation 164* calls for workers' health and safety delegates, workers' safety and health and/or joint safety and health committees or, as appropriate, other workers' representatives to be:

- * given adequate information on safety and health matters;
- * consulted on any proposed safety and health measures;
- * consulted on any planning alterations of work processes, work content or organisation of work which may have safety and health implications;
- * given protection from dismissal whilst exercising their functions as committee members or representatives;
- * able to contribute to the decision making process regarding matters of health and safety;
- * able to have access to all parts of the workplace and to be able to communicate with the workers on safety matters during working hours;
- * free to contact labour inspectors;
- * able to have reasonable time during paid working hours to exercise their safety and health functions;
- * able to have recourse to specialists to advise on particular safety and health problems.

Having regard to the activities and size of the organisation it is suggested that, for smaller undertakings, provision be made for the availability of an occupational health and safety service, within the undertaking, either jointly with other undertakings or under arrangements with an outside body. This would also include recourse to specialists to advise on particular occupational safety and health problems or to supervise the application of measures to meet them. Other matters called for include:

- * Employer's policy on safety and health.
- * Employers to verify the implementation of applicable standards on occupational health and safety regularly, for instance by environmental monitoring, and to undertake systematic safety audits from time to time.

Paragraph 16 sets out at length the arrangements which should be provided under Article 19 of the Convention concerning the obligations to which, on their part, workers should adhere.

Clearly some of the provisions in the Recommendation could not be made applicable to a vast number of very small operations but nevertheless for the larger establishments they represent no more than a reasonable standard with which to comply.

OTHER RECENT CONVENTIONS

Article 3 of Convention 161 provides:

- 1 Each member undertakes to develop progressively occupational health services for all workers, including those in the public sector and the members of production co-operatives, in all branches of economic activity and all undertakings. The provision made should be adequate and appropriate to the specific risks of the undertakings.
- 2 If occupational health services cannot be immediately established for all undertakings, each member concerned shall draw up plans for the establishment of such services with the most representative organisations of employers and workers, where they exist.
- 3 Each member concerned shall indicate, in the first report on the application of the Convention submitted under Article 22 of the Constitution of the International Labour Organisation, the plans drawn up pursuant to paragraph 2 of this Article, and indicate in subsequent reports any progress in their application.

Chlorine poisoning	-	-	-	-	-	-	4	-
Ammonia poisoning	-	-	-	-	-	-	3	-
Hydrogen sulphide poisoning	-	-	-	-	-	-	4	-
Others	-	-	-	-	-	-	4	14
Other conditions caused by above other than respiratory	-	-	-	7	2	3	-	-
SUBTOTALS	57	38	36	70	96	76	70	67
DISEASES DUE TO PHYSICAL AGENTS								
Compressed-air illness	-	-	1	1	-	-	-	-
Damage to eyesight								
(a) Non-traumatic physical agents)	24	2	5	4	3	12	6
(b) Trauma	111)	26	28	15	15	2	52	24
Hearing	8	4	13	2	9	385	864	1204
Other Conditions	-	1	1	18	5	8	-	-
Mesothelioma	-	-	-	-	-	-	5	-
SUBTOTALS	110	55	45	61	33	398	833	1224
OCCUPATIONAL DISEASES DUE TO INFECTIOUS AGENTS								
Leptospirosis	-	100	135	279	446	610	161	137
Brucellosis	-	12	4	47	87	30	15	14
Orf	-	-	-	-	-	-	152	156
other	-	-	-	2	3	72	1	8
SUBTOTALS	-	120	139	328	536	721	329	315
GRAND TOTALS	506	459	557	835	943	1301	1675	1862

The very random nature of these statistics reveals all their defects due to poor reporting, changes in compensation factors, diagnosis, etc.

APPENDIX IV

INTERNATIONAL LIST OF OCCUPATIONAL DISEASES (AMENDED 1980)

LIST OF OCCUPATIONAL DISEASES AS AMENDED BY THE MEETING OF EXPERTS

Occupational diseases	Work involving exposure to risk
1. Pneumoconioses caused by sclerogenic mineral dust (siliceous, anthraco-siliceous, asbestososis) and silico-tuberculosis, provided that silicosis is an essential factor in causing the resultant incapacity or death.	All work involving exposure to the risk concerned.
2. Bronchopulmonary diseases caused by hard-metal dust.	"
3. Bronchopulmonary diseases caused by cotton, flax, hemp or sisal dust (byssinosis).	"
4. Occupational asthma caused by recognized sensitizing agents or irritants inherent to the work process.	"
5. Extrinsic allergic alveolitis caused by the inhalation of organic dusts, as prescribed by national legislation.	"
6. Diseases caused by beryllium or its toxic compounds.	"
7. Diseases caused by cadmium or its toxic compounds.	"
8. Diseases caused by phosphorus or its toxic compounds.	"
9. Diseases caused by chromium or its toxic compounds.	"
10. Diseases caused by manganese or its toxic compounds.	"
11. Diseases caused by arsenic or its toxic compounds.	"
12. Diseases caused by mercury or its toxic compounds.	"
13. Diseases caused by lead or its toxic compounds.	"
14. Diseases caused by fluorine or its toxic compounds.	"
15. Diseases caused by carbon disulfide.	"
16. Diseases caused by the toxic halogen derivatives of aliphatic or aromatic hydrocarbons.	"
17. Diseases caused by benzene or its toxic homologues.	"
18. Diseases caused by toxic nitro- and amino-derivatives of benzene or its homologues.	"
19. Diseases caused by nitroglycerin or other nitric acid esters.	"
20. Diseases caused by alcohol, glycol or ketones.	"
21. Diseases caused by asphyxiants: carbon monoxide, hydrogen cyanide or its toxic derivatives, hydrogen sulfide.	"
22. Hearing impairment caused by noise.	"
23. Diseases caused by vibration (disorders of muscles, tendons, bones, joints, peripheral blood vessels or peripheral nerves).	"
24. Diseases caused by work in compressed air.	"
25. Diseases caused by ionizing radiations.	All work involving exposure to the so- tion of ionizing radiations.
26. Skin diseases caused by physical, chemical or biological agents not included under other items.	All work involving exposure to the risk concerned.
27. Primary epitheliomatous cancer of the skin caused by tar, pitch, bitumen, mineral oil, anthracene, or the compounds, products or residues of these substances.	"
29. Infectious or parasitic diseases contracted in an occupation where there is a particular risk of contamination.	(a) Health or laboratory work. (b) Veterinary work. (c) Work handling animals, animal car- casses, parts of such carcasses, or merchandise which may have been contaminated by animals or animal carcasses. (d) Other work carrying a particular risk of contamination.

* In the application of this schedule, the degree and type of exposure should be taken into account where appropriate.

Adopted at the 66th Session of the International Labour Conference June 1980.

APPENDIX V

HAZARD SURVEILLANCE RECOMMENDATIONS FOR OSHA

- 1 Collect, analyse, and use data currently required to be collected under ex 6(B) standards: acrylonitrile, arsenic, asbestos, benzene, coke oven emissions, cotton dust, formaldehyde, ethylene oxide, lead, and vinyl chloride. Set up an appropriate surveillance strategy for subsequent follow-up.
- 2 Promulgate a generic standard that requires industry to conduct environmental monitoring for a wider range of substances. Biologic monitoring data need to be collected also, but within that context the complex issues of rate retention and medical removal protection would need to be addressed. Data collected in this generic standard would be collected by OSHA, analysed, and used as a basis for intervention.
- 3 Consider how data from the Hazard Communication Standard can be collected, evaluated, and used as a basis for setting inspection priorities. Up to now that information has been considered as data for workers, but there is no reason it could not be used more extensively. The use of the data from the Hazard Communication Standard would enable OSHA to expand the breadth of compliance activities especially when coupled with data from NOES [National Occupational Exposure Survey, National Institute for Safety and Health] and TSCA [Toxic Substances Control Agency].
- 4 Some states have enacted laws that require reporting of occupational disease such as silicosis or excessive blood lead levels. Additional consideration should be given to how this data can become incorporated into the overall surveillance strategy. It would be appropriate for the data to become included in the OSHA IMIS [Integrated Management Information System] and used as a basis for setting inspection priorities.
- 5 OSHA needs to establish an evaluative mechanism to determine the effectiveness of its compliance effort. In particular, when certain jobs or processes in industry continually demonstrate overexposure, the basis of those violations must be evaluated. This should include engineering review as well as other factors that might influence employer compliance.
- 6 Focused enforcement activities are entirely appropriate when continuing overexposures are occurring, but they do not represent a valuable effort unless effective evaluative efforts are simultaneously conducted. These and other surveillance activities need to be considered if the limited resources of OSHA can better be used to identify and ultimately control workplace disease.¹

¹ Froines, J R, *Worksite Inspection and the Control of Disease: The OSHA Experience*, (1989) 572 *Annals of the New York Academy of Sciences* 177-183, 183.

APPENDIX VI
INTERNATIONAL LABOUR ORGANISATION
OCCUPATIONAL HEALTH AND SAFETY CONVENTIONS
NEW ZEALAND'S RECORD

CONVENTIONS ADOPTED

1921	12	Workmen's Compensation (Agriculture)
	15	Minimum Wage (Trimmers and Stokers)
	16	Medical Examination of Young Persons (Sea)
1925	17	Workmen's Compensation (Accidents)
1932	32	Protection against Accidents (Dockers)(Revised)
1934	41	Night Work (Women)(Revised) Later denounced
	42	Workmen's Compensation (Occupational Diseases)(revised)
1935	45	Underground Work (Women) Later denounced
1936	58	Minimum Age (Sea)(Revised)
1937	59	Minimum Age (Industry)(Revised)
1947	81	Labour Inspection
1948	89	Night Work (Women) (Revised) Later denounced
1970	134	Prevention of Accidents (Seafarers)

CONVENTIONS NOT ADOPTED

1919	3	Maternity Protection
	4	Night Work (Women)
	5	Minimum Age (Industry)
	6	Night Work of Young Persons (Industry)
1920	7	Minimum Age (Sea)
1921	12	Workmen's Compensation (Agriculture)
	13	White Lead
1925	18	Workmen's Compensation (Occupational Diseases)
	20	Night Work (Bakeries)
1929	27	Marking of Weight (Packages transported by vessels)
	28	Protection against Accidents (Dockers)
1932	33	Minimum Age (Non-Industrial Employment)
1936	55	Shipowners' Liability (Sick and Injured Seamen)
	56	Sickness Insurance (Sea)
1937	60	Minimum Age (Non-Industrial Employment)(Revised)
1937	62	Safety Provisions (Buildings)
1946	73	Medical Examinations (Seafarers)
	77	Medical Examinations of Young Persons (Industry)
	78	Medical Examinations of Young Persons (Non-industrial Occupations)
	79	Night Work of Young Persons (Non-Industrial)(Revised)
1948	90	Night Work of Young Persons (Industry)(Revised)
1959	112	Minimum Age (Fishermen)
	113	Medical Examination (Fishermen)
	114	Fishermen's Articles of Agreement)
1960	115	Radiation Protection
1963	119	Guarding of Machinery
1964	120	Hygiene (Commerce and Offices)
	121	Employment Injury Benefits
1965	124	Medical Examination of Young Persons (Underground Work)

1966	125	Fishermen's Competency Certificates
	126	Accommodation of Crews (Fishermen)
1967	127	Maximum Weight
1969	129	Labour Inspection (Agriculture)
1971	136	Benzene
1973	137	Dock Work
	138	Minimum Age
1974	139	Occupational Cancer
1976	144	Tripartite Consultation (International Labour Standards)
	147	Merchant Shipping (Minimum Standards)
1977	148	Working Environment (Air Pollution, Noise and Vibration)
1979	152	Occupational Safety and Health (Dock Work)
	153	Hours of Work and Rest Periods (Road Transport)
1981	155	Occupational Safety and Health
1985	160	Labour Statistics
1985	161	Occupational Health Services
1986	162	Asbestos
1987	163	Seafarer's Welfare
	164	Health Protection and Medical Care (Seafarers)
1988	167	Safety and Health in Construction
1990	170	Safety in the Use of Chemicals at Work

REFERENCES

ABEL, R L, A Critique of Torts, (1990) 37 *U C L A Law Review*, 785-831.

ACCIDENT COMPENSATION COMMISSION, *Report of the Commission for the year ended 31 March 1979*, Wellington: Govt Printer.

ACCIDENT COMPENSATION CORPORATION, *Report of the Accident Corporation for the Year ended 31 March 1982*, Wellington: Govt Printer.

_____, (1985) 4 *Statistical Journal of the ACC*

ADELSTEIN, A M, Accident Proneness: A Criticism of the Concept Based on Analysis of Shunters' Accidents, (1952) 115 *Journal of the Royal Statistical Society, Series A*, 354-410.

ADVISORY COMMITTEE ON OCCUPATIONAL SAFETY AND HEALTH, *Occupational Safety and Health Reform*, (1988) Wellington: ACOSH.

AMES, B N, Identifying Environmental Chemicals Causing Mutations and Cancer, (1979) 204 *Science* 587-593.

APPENDICES TO THE JOURNALS OF THE HOUSE OF REPRESENTATIVES SUNDRY ISSUES.

ARBOUS, A G & KERRICH, J E, Accident Statistics and the Concept of Accident Proneness, Part 1, (1951) 7 *Biometrics*, 341-390.

ASBESTOS: Report of the Advisory Committee to the Minister of Labour, (1991) Wellington: Department of Labour.

ASHFORD, N. *Crisis in the Workplace*, (1976) Cambridge MA: MIT Press.

ATTYAH, P S, Accident Premiums and Variable Premium Rates for Work-connected Accidents, (1976) 2 *Industrial Law Journal*, 1-11, 89-105.

_____, Common Law and Statute Law, (1985) 48 *Modern Law Review*, 1-28.

_____, & Cane, P, *Atiyah's Accidents, Compensation and the Law*, 4th Ed, (1987) London: Weidenfeld & Nicolson.

BALDWIN, R, Why Rules Don't Work, (1990) 53 *Modern Law Review*, 321-337.

BARRETT, B, & HOWELLS, R, *Health and Safety at the Workplace: The Involvement of Workpeople* (1988) International Conference on Ergonomics, Occupational Health & Safety, Beijing, China, mimeo, 779.

_____, & JAMES, P, Safe Systems: Past, Present – and Future? (1988) 17 *Industrial Law Journal*, 26-40.

BARTEL, A P & THOMAS, L S, Direct and Indirect effects of Regulation: A New Outlook on OSHA's Impact, (1985) 20 *Journal of Law and Economics*, 1-25.

- BARTH, P S & HUNT, H A, *Workers' Compensation and Work-related Illness and Disease*, (1982) Cambridge MA: MIT Press.
- BECKER, C E & COYE, M J, *Cancer Prevention Strategies in the Workplace*, (1986) Washington DC: Hemisphere Pub.
- BECKETT, S *Waiting for Godot*, A Play, (1956) London: Faber & Faber.
- BENSON, J, Union Involvement in Health Issues: The VIC RAIL Asbestos Dispute, (1981) 6 *NZ Journal of Industrial Relations* 57-65.
- BIRCH, Hon W, *Accident Compensation: A Fairer Scheme*, (1991) Wellington: Minister of Labour.
- _____, *Management of Health and Safety in Employment*, (1991) Wellington: mimeo, Minister of Labour.
- _____, Letter to the Vice President, NZ Council of Trade Unions dated 5 August 1991.
- BLACKMORE, D K Zoonoses in New Zealand, *Proceedings of the Ninth International Congress of Agricultural Medicine and Rural Health* (1984) Christchurch: Vol 1, mimeo.
- BLAIR, A P *Accident Compensation in New Zealand* (2nd Ed) (1983) Wellington: Butterworths.
- BODEN, L I, MIARES, R & OZONOFF, D, Science and Persuasion: Environmental Disease in U S Courts, (1988) 27 *Society, Science and Medicine*, 1019-1029, 1028.
- BRISCOE G J, *Risk Management Guide*, (1982) Idaho Falls: E G & G Inc.
- BROOK, P, *Freedom at Work: the Case for Reforming Labour Law in NZ*, (1990) Auckland: Oxford.
- BROOKS, A, The concepts of "Injury" and "Disease" in Workers' Compensation Law >> A Re-examination in the light of Recent Events, (1987) 10 *University of NSW Law Journal*, 39-66.
- _____, Rethinking Occupational Health and Safety Legislation (1988) 30 *Journal of Industrial Relations* 347-362.
- BROWN, R, The Right to Refuse Unsafe Work (1984) 17 *University of British Columbia Law Review*, 1-34.
- BUDDO, Hon D (1910) 149 *New Zealand Parliamentary Debates*, 618.
- Building Businesses, Not Barriers*, (1986) Cmnd 9794, London: HMSO.
- CALABRESI, G Optimal Deterrence and Accidents, (1975) 84 *Yale Law Journal*, 656-671.
- CAMPBELL, I B, Accident Prevention Activity: Its Need and its Measurement, (1980) 6 *Control*, 131-146.
- _____, *Experience Rating for Accident Compensation: A Necessity or Wishful Thinking*, Occasional Paper No 4, (1989) Palmerston North: Massey University.

_____, Occupationally related illness: its compensation and its prevention, (1985) 10 *NZ Journal of Industrial Relations*, 1-14.

_____, *Legislating for Workplace Hazards in New Zealand: Overseas Experience and Our Present and Future Needs* (1987) Palmerston North: Massey University.

_____, & HAY D M, Occupational Health in New Zealand: Legislation, Information and Training, (1984) 48 (5) *Chemistry in New Zealand*, 87-90.

_____, & NEAZOR, D P, *Workers' Compensation Law in New Zealand*, (1964) Wellington: Sweet & Maxwell.

CARSON, K (W G) & JOHNSTONE, R, The Dupes of Hazard: Occupational Health and Safety and the Victorian Sanctions Debate, (1990) 26 *Australian and New Zealand Journal of Sociology*, 126-141.

CARSON, W G, *The Other Price of Britain's Oil*, (1982) Oxford: Martin Robertson.

_____, Hostages to History: Some Aspects of the Occupational Health and Safety Debate in Historical Perspective, *The Industrial Relations of Occupational Health and Safety*, Creighton, B & Gunningham, N Eds (1985) Sydney: Croom Helm.

CASTLEMAN, B I, The Export of Hazardous Factories to Developing Nations, (1979) 9 *International Journal of Health Services*, 569-606.

_____, & ZIEM, G E, Corporate Influence and the Threshold Limit Values, (1988) 13 *American Journal of Industrial Medicine*, 531-559.

_____, *Asbestos: Medical and Legal Aspects* 3rd Ed, (1990) Englewood Cliffs NJ: Prentice Hall.

CAYGILL, Hon D, *Securing Economic Recovery: Budget Speech* (1989) Wellington: Govt Printer.

CHAPMAN, C H, (1946) 275 *New Zealand Parliamentary Debates*, 718.

CHEEK III, L, Legal vs Medical Criteria for Determining Causation in Occupational Disease Claims, (1989) 572 *Annals of the New York Academy of Sciences*, 17-22.

CHELIUS, J R, & SMITH, R S, Experience-Rating and Injury Prevention in *Safety and the Work Force*, Worrall, J D, Ed, (1983) Ithaca NY: ILR Press.

CHESSON, B, (1987) Personal communication.

CLEVELAND, R, COHEN, H H, SMITH, M J & COHEN, A, *Safety Program Practices in Record-holding Plants*, (1979) Morgantown WV: NIOSH.

COASE, R H, The Problem of Social Cost, (1960) 3 *Journal of Law and Economics*, 1-44.

COFFEE, J C, No soul to damn: No body to kick: An unscandalized inquiry into the problem of corporate punishment, (1981) 79 *Michigan Law Review*, 386-459.

COMITÉ d'ÉTUDE SUR LA SALUBRITÉ DANS L'INDUSTRIE DE L'AMIANTE [asbestos], *Rapport final* (Beaudry Report), (1976) Québec City: éditeur officiel du Québec.

COMMITTEE ON SAFETY AND HEALTH AT WORK, *Safety and Health at Work: Report of the Committee*, 1972) Cmnd 5072, London: HMSO, 7, (The Robens Report).

COMPENDIUM ON WORKERS' COMPENSATION, (1973) Washington DC: USGPO.

COMPENSATION FOR PERSONAL INJURY IN NEW ZEALAND: REPORT OF THE ROYAL COMMISSION OF INQUIRY, (The Woodhouse Report) (1967). Wellington: Govt Printer.

CONTROL OF SUBSTANCES HAZARDOUS TO HEALTH REGULATIONS 1988 SI No 1657, London: HMSO.

CORNISH, J, *Construction Safety Law: LL M Thesis, Victoria University of Wellington*, (1979) 38.

CREIGHTON, W B, *Legal Obligations* International Conference (1986), Adelaide Mimeo.

CRONIN, J B, Cause and Effect: Investigations into Industrial Accidents in the United Kingdom, (1971) 103 *International Labour Review*, 99-115.

CULLEN: THE TECHNICAL IMPLICATIONS, *Marine Engineering Review*, January 1991, 42-3.

DAVIDSON, J M, Review of Industrial Safety in New Zealand and the Health of the Industrial Worker, with Proposals for the Development of the System, *Annual Report of the Department of Health H 31, Appendix 2*, (1945) Wellington: Govt Printer.

DAWSON, S, WILLMAN, P, CLINTON, A & BAMFORD, M, *Safety at Work: the Limits of Self-regulation*, (1988) Cambridge: Cambridge.

DECLERQ, N, Workers' Compensation, Job Stress, and Mental Injury, (1985) 9 *Labor Studies Journal*, 279-292.

DEPARTMENT OF HEALTH, *GREY VALLEY SURVEY, THE DEPARTMENT OF HEALTH SPECIAL REPORT No 3*, (1961) Wellington: Govt Printer.

_____, *Workplace Exposure Standards for New Zealand*, (1988) Wellington: Department of Health.

_____, *Annual Reports*.

DEPARTMENT OF LABOUR, *Code of Practice for Health and Safety Representatives and Health and Safety Committees*, (1987) Wellington Department of Labour.

_____, *International Conventions Ratified by NZ*, (1988) Wellington: Department of Labour.

DEWEES, D N, Economic incentives for controlling industrial disease, (1986) 15 *Journal of Legal Studies*, 289-319

DOERN, G B, PRINCE, M & McNAUGHTON, G. *Living with Contradictions: Health and Safety Regulation in Ontario* (1982) Toronto: Royal Commission on Matters of Health and Safety Arising from the Use of Asbestos in Ontario.

_____, "The Political Economy of Regulation Occupational Health" the Ham and Beaudry Reports, (1977) 20 *Canadian Public Administration*, 1-35.

DOLL, R, Occupational Cancer: A Hazard for Epidemiologists, (1985) 14 *International Journal of Epidemiology*, 22-31.

_____, Symposium on MMMF, Copenhagen, October 1986: Overview and Conclusions, (1987) 31 *Annals of Occupational Hygiene*, 805-819.

DONIGER, D D, Federal Regulation of Vinyl Chloride: A Short Course in the Law and Policy of Toxic Substances Control, (1978) 7 *Ecology Law Quarterly*, 500-677.

DRAKE, C D, & WRIGHT, F B, *Law of Health and Safety at Work: The New Approach*, (1983) London: Sweet & Maxwell, 15.

DRAPER, J W P, Workers' Compensation Board, Ontario, personal communication, (1972).

D'SOUZA, K, ALDRIDGE, W, BELT, K, CAMPBELL, I B, & MACKENZIE, H, *Quality & Safety Systems*, (1989) Wellington: Maritime Transport.

DUGDALE, M D, *The ILO New Zealand's Record 1919-1979*, LL M Thesis (1979) Victoria University of Wellington, 47.

EDSALL, Science Freedom and Responsibility (1975) 188 *Science*, 687-693.

ELISBURG, D, Federal Occupational Disease Legislation: A Current Review, *Current Issues in Workers' Compensation*, Chelius, J Ed, (1986) Kalamazoo, MN: Upjohn Institute.

ELLIS, L, A Review of Research on Efforts to Promote Occupational Safety, (1975) 7 *Journal of Safety Research*, 180-9.

ENTERLINE, P E, MARSH, G M, HENDERSON, V & CALLAHAN, C, Mortality Update of a Cohort of US Man-made Mineral Fibre Workers, (1987) 31 *Annals of Occupational Hygiene* 625-656.

EVENING POST, 23 June 1987.

_____, 27 August 1991

FAGAN Hon M, (1937) 249 *New Zealand Parliamentary Debates*, 913.

FENN, P & VELJANOVSKI, C G, A Positive Economic Theory of Regulatory Enforcement, (1988) 98 *The Economic Journal*, 1055-1070.

FERGUSON, D, Occupational Disease and Injury in *Occupational Health and Safety*, Douglas, D, Ferguson, D, Harrison, J & Stevenson, M, (1986) Sydney: Australian Medical Association.

FISCHHOFF, B, SLOVIC, P, LICHTENSTEIN, S, READ, S & COMBS, B, How Safe is Safe Enough? A Psychometric Study of Attitudes: Towards Technological Risks and Benefits, (1973) 9 *Policy Sciences*, 127-152.

FLEMING, J G, *The Law of Torts*, (1971) Sydney: Law Book Co.

FOSTER, B J & McLINTOCK, A H, Waddell, Rutherford, *An Encyclopaedia of New Zealand* Vol 3, (1966) Wellington: Govt Printer.

FROINES, J R, *Worksite Inspection and the Control of Disease: The OSHA Experience*, (1989) 572 *Annals of the New York Academy of Sciences*, 177-183, 183.

_____, WEGMAN, G & EISEN, E, *Hazard Surveillance in Occupational Disease*, (1989) 79 *American Journal of Public Health*, Suppt. 26-31.

GASKINS, R H, *Environmental Accidents: Personal Injury and Public Responsibility*, (1989) Philadelphia: Temple University Press.

GEWIRTH, A *Human Rights and the Prevention of Cancer*, (1980) 17 *American Philosophical Quarterly*, 112-5.

GLASBEEK, H J & ROWLAND, S, *Are Injuring and Killing at Work Crimes?* (1979) 17 *Osgoode Hall Law Journal*, 506-594.

GLASS, W I, *People at Work: Their Health, Safety and Welfare*, (1974) Auckland: Wormald.

_____, *Health and safety needs of workers in medium-size workplaces* (1988) 6 (6) *Safeguard*, 14-15.

_____, *Dr Tom Garland -- a pioneer in occupational health*, (1989) 182 *NZ Medical Journal*, 109-110.

GLEASON, J M, and BARNUM, D T, *Effectiveness of OSHA Sanctions in influencing employer behaviour: Single and Multi-period Decision Models*, (1978) 10 *Accident Prevention and Analysis* 5-49.

GLENDON, A I & BOOTH, R T, *Worker Participation in Occupational Health and Safety in Britain* (1982) 121 *International Labour Review*, 399-416.

GLORIG, A, *Noise and Your Ear*, (1958) New York: Grune & Stratton.

GREENWOOD, M & WOOD, H, (1919) *Reports of the Industrial Research Board, No 4, The Incidence of Industrial Accidents upon Individuals with Special Reference to Multiple Accidents*, London: HMSO.

GUNDERSON, M, & SWINTON, K, *Collective Bargaining and Asbestos Dangers of the Workplace*, (1981) Toronto: The Royal Commission on Matters of Health and Safety Arising from the Use of Asbestos in Ontario.

GUNNINGHAM, N, *Safeguarding the Worker*, (1984) Sydney: Law Book Co Ltd.

HADDON, W, SUCHMAN, E & KLEIN, D, *Accident Research: Methods and Approaches* (1964) New York: Harper & Row.

HALE, A R, PINEY, M & ALESBURY, R J, *The Development of Occupational Hygiene and the Training of Health and Safety Professionals*, (1986) 30 *Annals of Occupational Hygiene*, 1-18.

HAMILTON Hon A (1946) 275 *New Zealand Parliamentary Debates*, 728.

- HART, H L A, & HONORÉ, A M, *Causation in the Law*, (1959) Oxford: Clarendon Press.
- HEALTH AND SAFETY EXECUTIVE, *COLLECTING INFORMATION ON DISEASES CAUSED BY WORK*, (1988) London: Health and Safety Executive.
- HEALTH CONSEQUENCES OF THE ICI FIRE, THE*, Report to the Minister of Health, (1990) Wellington: Govt Printer.
- HEALTH & SAFETY EXECUTIVE GUIDANCE NOTE EH 40*, (1988) London: HSE.
- HEALTH AND SAFETY STATISTIC 1988-89, (1990) 98 (11) *Employment Gazette, Occasional Supplement No 1*, 1-61, 5.
- HEALTH CONSEQUENCES OF THE ICI FIRE: REPORT TO THE MINISTER OF HEALTH ON THE HEALTH OF FIREFIGHTERS IN THE Fire AT THE RIVERVIEW STORE, MOUNT WELLINGTON, AUCKLAND, 21 DECEMBER 1984*, (1990) Wellington: Health Department.
- HEATH, C W, FALK, H, & CREECH, L, Characteristics of cases of angiosarcoma in the liver among vinyl chloride workers in the United States, (1975) 329 *Annals of the New York Academy of Sciences*, 329.
- HEIKKILÄ, P, SAVELA, A, VUORELA, R & RANTANEN, T. *Employees exposed to carcinogens in Finland in 1986*, (1988) Helsinki: Institute of Occupational Health.
- HEINRICH, H W, (1941) *Industrial Accident Prevention: A Scientific Approach* 2nd Ed New York: McGraw Hill.
- HENSCHLER, D, Exposure Limits: History, Philosophy, Future Developments, (1984) 28 *Annals of Occupational Hygiene*, 79-92.
- HOPKINS, A & PARNELL, N, Why Coal Mine Safety Regulations in Australia are not Enforced, (1984) 12 *International Journal of Sociology and the Law*, 179-194.
- HOROWITZ, S B, *Injury and Death under Workmen's Compensation Laws*, (1944) Boston MA: Wright & Potter, 8.
- HOUSE OF COMMONS, *Sixth Report from the Employment Committee: Session 1981-82, The Working of the Health and Safety Commission and Executive: Achievements since the Robens Report*.
- HOWE, K R, *Singer in a Songless Land: A Life of Edward Tregear 1846-1931*, (1991) Auckland: Auckland University Press.
- HOWELLS, R W L, The Robens Report, (1972) 1 *Industrial Law Journal*, 185-196.
- HUNTER, D, *The Diseases of Occupations*, (1978) London: Hodder & Stoughton, 37.
- _____, *Health in Industry*. (1959) Harmondsworth Middlesex: Penguin.
- IBSEN, H, *A Public Enemy*, A play translated by P Watts written in 1882, (1973) Penguin.

INTERNATIONAL LABOUR ORGANISATION: REPORT OF THE NEW ZEALAND GOVERNMENT DELEGATES ON THE SEVENTY-SECOND SESSION OF THE INTERNATIONAL CONFERENCE, GENEVA, 4 JUNE TO 25 JUNE 1986, Parliamentary Paper A 7, (1986) Wellington: Govt Printer.

INTERNATIONAL LABOUR ORGANISATION, *Convention 139*, (1974) Geneva: ILO.

_____, *Convention 155*, (1981) Geneva: ILO.

_____, *Convention 161*, (1985) Geneva: ILO.

_____, *Recommendation 147*, (1974) Geneva: ILO.

_____, *Recommendation 164*, (1981) Geneva: ILO.

_____, *Recommendation 171*, (1985) Geneva: ILO.

_____, *Report VII (b) Amendment of the List of Occupational Diseases Appended to the Employment Injury Benefits Convention, 1964 (No 121)*, (1980) Geneva: ILO.

_____, *Safety in the Use of Chemicals at Work, Report VI(1)* (1988) Geneva: ILO.

ISON, T G, *The Forensic Lottery*, (1967) London: Staples Press.

_____, *The Dimensions of Industrial Disease, Research and Current Series, No. 35*, (1978) Kingston: Queens University.

_____, *Accident Compensation: A Commentary on the New Zealand Scheme*, (1980) London: Croom Helm.

_____, *Access to Information and Procedural Due Process*, in *Freedom of Information: Canadian Perspectives*, J D McCamus Ed, (1981) Toronto: Butterworths.

_____, *Experience Rating: Expectations and Realities*, A paper for a conference on "Experience Rating: Incentive or Disincentive," (1986) Toronto: Corpus Occupational Health and Safety Group, Mimeo.

_____, *The Significance of Experience Rating*, (1986) 24 *Osgoode Hall Law Journal*, 723-742.

JASONOFF, S, *The Bhopal Disaster and the Right to Know*, (1988) 27 *Society, Science and Medicine*, 1019-1029.

JOHNSON, W G, *MORT Safety Assurance Systems*, (1980) New York: Marcel Dekker.

JOHNSTON, G A, *The International Labour Organisation: Its Work for Social and Economic Progress*, (1970) London: Europa Publications.

KELMAN, S, *Regulating America, Regulating Sweden* (1981) Cambridge MA: MIT Press.

KINNERSLEY, P, *The Hazards of Work*, (1973) London: Pluto Press.

KLINBERG, K, *Commissioner Profiles*, (1989) 4 (2) *Update*.

KLOSS, D, *Occupational Health Law*, (1989) Oxford: BSP Professional Books.

LATIN, H A, *The Feasibility of Occupational Health Standards: An Essay on the Legal Decision Making under Uncertainty*, (1983) 78 *Northwestern University Law Review*, 583-631.

_____, *Good Science, Bad Regulation, and Toxic Risk Assessment*, (1988) 5 *Yale Journal on Regulation*, 89-148.

LAW COMMISSION, *Prevention and Recovery: Report on the Accident Compensation Scheme, Report No 4*, (1988) Wellington: Law Commission.

LAW REFORM COMMISSION OF CANADA, *Workplace Pollution, Working Paper 53* (1986) Ottawa: Law Reform Commission of Canada.

LEE, J S, *An Industrial Hygienist's Perspective on Generic Standards*, (1989) 572 *Annals of the New York Academy of Sciences*, 93-99.

_____, *Round Table 2: Discussion*, (1989) 572 *Annals of the New York Academy of Sciences*, 107-109.

LEWIS-BECK, M S & ALFORD, J R, *Can Government Regulate Safety? The Coal Mine Example*, (1980) 74 *American Political Science Review*, 745-756.

Lifting the Burden, (1985) Cmnd 9571, London: HMSO.

LILIENFELD, D E, *The Silence: The Asbestos Industry and Early Occupational Cancer Research >> A Case Study*, (1991) 81 *American Journal of Public Health*, 791-800.

LINDELL, M K & PERRY, R W, *Effects of Chernobyl Accident on Public Perceptions of Nuclear Plant Accident Risks*, (1990) 10 *Risk Analysis*, 393-399.

LIVOCK, R, *Science, Law and Safety Standards: A Case Study of Industrial Disease*, (1979) 6 *British Journal of Law & Society*, 172-199.

LOCKE, L, *Adapting Workers' Compensation to the Special Problems of Occupational Disease*, (1985) 9 *Harvard Environmental Law Review*, 249-282.

LOWRANCE, W W, *Of Acceptable Risk* (1976) Los Altos: Kaufmann.

LYNDON, M L, *Information Economics and Chemical Toxicity: Designing Laws to Produce and use Data*, (1989) 87 *Michigan Law Review*, 1795-1861.

MacLEAN, F S, *Challenge for Health: A History of Public Health in New Zealand*, (1964) Wellington: Govt Printer.

McDONALD, G, *Understanding Accident Phenomena > The Damage Occurrence > Qualitatively and Quantitatively*, (1986) International Conference Adelaide, mimeo.

McINTOSH, P M, *A History of Factories Legislation in New Zealand: 1879-1981*, (1983) Research Project, Palmerston North: Massey University.

- McLELLAN, J W, Hazardous Substances and the Right to Know in Canada, (1989) 128 *International Labour Review* 639-650.
- MAKING PREVENTION PAY: FINAL REPORT TO THE INTERAGENCY TASK FORCE ON WORKPLACE SAFETY AND HEALTH** (1978) Rosslyn, VA: OSHA, VI-17.
- MALCOLMSON, P E, Occupational Health: An Ontario Perspective, (1982) 3 *Occupational Health in Ontario*, 206-217
- MANGA, P, BROYLES, R & RESCHENTHALER, S, *Occupational Health and Safety Issues and Alternatives*, Report No 6, (1981) Ottawa: Economic Council of Canada.
- MARKOWITZ, M & LANDRIGAN, P, The Magnitude of the Occupational Disease Problem: An Investigation in New York State, (1989) 5 *Toxicology and Industrial Health*, 9-30.
- MATHEWS, J, *Health and Safety at Work: Australian Trade Union Safety Representatives Handbook*, (1985) Sydney: Pluto.
- MELIUS, J M, SESTITO, J P & SELIGMAN, P J, Occupational Disease Surveillance with Existing Data Sources, (1989) 79 *Suppt American Journal of Public Health*, 46-51.
- MENDELOFF, J, *Regulating Safety: An Economic and Political Analysis of Occupational Health and Safety Policy* (1979) Cambridge MA: MIT Press.
- _____, The role of OSHA in Serious Workplace Accidents (1984) 25 *Journal of Occupational Medicine* 350-360.
- MEREDITH, Sir William, C J Ontario, *Final Report on Laws Relating to the Liability of Employers*, (1913) Toronto: H M Printer.
- MILLER, D T, *Psychological Factors in Influencing Compliance*, (1985) Ottawa: Department of Justice, mimeo.
- MILLER, R S, The Future of new Zealand's Accident Compensation Scheme, (1989) 11 *University of Hawaii Law Review*, 1-81.
- MINISTERIAL COMMITTEE OF INQUIRY: *Supplementary Report to the Minister of Health, Possible Health Effects of Manufacture of 2,4,5-T in New Plymouth*, (1987) Wellington, 9.
- MORGAN, P, The Costs and Benefits of the Power Presses Regulations 1965, (1983) 21 *British Journal of Industrial Relations*, 181-196.
- MORRALL, J F, A Review of the Record, (1986) Nov-Dec *Regulation*, 25-34.
- MOSS, T, Cost-Benefit Analysis, Cost Effectiveness Analysis and the Cotton Dust Standard: A Matter of Life and Death, 35 (1982) *Rutgers Law Review*, 133-162.
- MULLEN, E A, Voluntarism in occupational health and safety: the New Zealand response, (1990) 15 *NZ Journal of Industrial relations*, 128-143.

NADER, R, Multinationals Make Megabucks from Cheap Labour on the Mexican Border, (1991) *The Examiner*, 8 August 1991.

NEAL, A C, The European Framework Directive on the Health and Safety of Workers: Challenges for the United Kingdom? (1990) 6 *The International Journal of Comparative Labour Law and Industrial Relations*, 80-117, 105.

NEW SCIENTIST, (1986) Dust to Dust, V 110, 1514.

NEW ZEALAND BUSINESS ROUNDTABLE, *Review of Accident Compensation: A Submission to the Law Commission*, (1987) mimeo, Wellington.

_____, *Regulating for Occupational Health and Safety*, (1988) Wellington.

NEW ZEALAND COUNCIL OF TRADE UNIONS, *Health & Safety Clauses in Private and Public Sector Documents* (1989) Wellington: CTU.

NEW ZEALAND PARLIAMENTARY DEBATES.

NG, T K, Descriptive Occupational Morbidity Statistics, (1988) 41 (3/4) *World Health Statistics Quarterly*, 200-8.

NICHOLS, A L & ZECKHAUSER, R, Government goes to the Workplace: An Assessment of OSHA, (1977) *The Public Interest*, 39-69.

NICHOLS, T, Industrial Safety in Britain and the 1974 Health and Safety at Work Act: the Case of Manufacturing, (1990) 18 *International Journal of the Sociology of the Law*, 317-342.

NOTE: Occupational Health Risks and the Worker's Right to Know, (1981) 90 *Yale Law J*, 1792-1810.

OCCUPATIONAL DISEASES in FINLAND IN 1984 (1984) Helsinki: Institute of Occupational Health.

OCCUPATIONAL SAFETY AND HEALTH REFORM (1988) Wellington: ACOSH.

O'CONNELL, J, BROWN, C & VENNEL, M, Reforming NZ's Reform: Accident Compensation Revisited, (1988) *NZ Law Journal*, 399-402.

OSIEKE, E, *Constitutional Law and Practice in the ILO*, (1985) New York: Martinus Nijhoff.

OXFORD ENGLISH DICTIONARY, 2nd Edition (1989), Oxford: Oxford U P.

OZONOFF, D. Medical and Legal Causation, (1989) 572 *Annals of the New York Academy of Sciences*, 23-26.

PAGE, J A, & O'BRIEN, M-W, *Bitter Wages*, (1973) New York: Grossman.

PALMER, G W R *Compensation for Personal Incapacity* (1979) Wellington: Oxford.

PARSONS, M D, Worker Participation in Occupational Health and Safety: Lessons from the Canadian Experience, (1988) 13 *Labor Studies Journal*, 22-32.

PAULOS, J A, *Innumeracy: Mathematical illiteracy and its Consequences*, (1988) New York: Vintage Books.

PERROW, C, *Normal Accidents*, (1984) New York: Basic Books.

PERRY, C S, Government Regulation of Coal Mine Safety, (1982) 10 *American Politics Quarterly*, 303-314.

PERSONAL INJURY: PREVENTION AND RECOVERY, Report on the Accident Compensation Scheme, Report No 4 (1988) Wellington: Law Commission.

PETO, R, Distorting the epidemiology of cancer: the need for a more balanced overview. (1980) 284 *Nature*, 297-300.

PIERCE Jr, R J, Encouraging Safety: The Limits of Tort Law and Government Regulation, (1980) 33 *Vanderbilt Law Review*, 1281-1331.

PIPER SUBMISSIONS -- UNITY AND CONFLICT, *Marine Engineering Review*, April 1990, 28-29, 28.

POSNER, R A, A Theory of Negligence, (1972) 1 *Journal of Legal Studies*, 29-96.

PREST, A R & TURVEY, R, Cost-benefit Analysis: A Survey, (1965) 75 *The Economic Journal*, 683-735.

QUINLAN, M, (1991) Personal communication

_____, and BOHLE, P, *Managing Occupational Health and Safety in Australia*, (1991) Melbourne: MacMillan.

RAFFLE, P A D, LEE, W R, McCALLUM, R & MURRAY, R, *Hunter's Diseases of Occupations*, (1987) London: Hodder & Stoughton.

REEVES, W P, *The Long White Cloud: (Ao Tea Roa)* 3rd Ed, (1924) London: Allen & Unwin, 315.

REINER, I, & CHATTEN-BROWN, J, Deterring Death in the Workplace: The Prosecutor's Perspective, (1989) 17 *Law, Medicine & Health Care*, 23-31.

REPORT OF THE ROYAL COMMISSION ON CIVIL LIBERTY AND COMPENSATION FOR PERSONAL INJURY, Cmnd 7054, (1978) London: HMSO.

REPORT OF THE ROYAL COMMISSION ON MATTERS OF HEALTH AND SAFETY ARISING FROM THE USE OF ASBESTOS IN ONTARIO, (1984) Toronto: Ministry of the Attorney General.

REPORT OF THE ROYAL COMMISSION ON THE HEALTH AND SAFETY OF WORKERS IN MINES, (The Ham Report) (1976) Toronto: Ministry of the Attorney General.

REPORT OF THE ROYAL COMMISSION TO INQUIRE INTO AND REPORT ON THE CAUSE OF THE ACCIDENT WHICH OCCURRED TO THE SCAFFOLDING ON THE DIC BUILDING ON 8 MAY 1957: (1957) H 49, Wellington Govt Printer.

- R K L, Social Security: Benefits for industrial disease, (1984) 13 *Industrial Law Journal*, 128-130.
- ROBLEE, R, The dark side of Workers' Compensation: Burdens and benefits in occupational disease coverage, (1978) 2 *Industrial Relations Law Journal*, 596-631.
- SAFETY AND HEALTH AT WORK:** Report of the Committee, (1972) Cmnd 5034, London: HMSO.
- SANDS, P E, How Effective is Safety Legislation? (1968) 11 *Journal of Law & Economics*, 161-174.
- SCHNEIDERMAN, M A, Cost-benefit Social Values and the Setting of Occupational Health Standards, in *Legal & Ethical Dilemmas In Occupational Health*, Lee, J S & Rom, W N Eds, (1982) Ann Arbor: Ann Arbor Science, 191.
- SCHROEDER, E P, Legislative and Judicial Responses to the Inadequacy of Compensation for Industrial Disease, (1986) 49 *Law & Contemporary Problems* 151-182.
- _____, & SHAPIRO, S A, Responses to Occupational Disease: The Role of Markets, Regulation, and Information, (1983-1984) 72 *Georgetown Law Journal*, 1231-1309.
- SEIDMAN, H & SELIKOFF, I J, Decline in Death Rates among Asbestos Insulation Workers 1967-1986 with Diminution of Work Exposure to Asbestos, (1990) 609 *Annals of the New York Academy of Sciences*, 300-318, 300.
- SELIKOFF, I J, HAMMOND, E C & SEIDMAN, H, Mortality experience of insulation workers in the United States and Canada, (1979) 330 *Annals of the New York Academy of Sciences*, 91-116.
- _____, Carcinogenic Risk Management in the United States, 1979 363 *Annals of the New York Academy of Sciences*, 283-293.
- SENNECK, C R, Over 3-day Absences and Safety, (1975) 6 *Applied Ergonomics*, 147-153.
- SHANNON, H S, JAMESON, E, JULIAN, J A MUIR, D F C & WALSH, C, Mortality Experience Of Ontario glass-fibre workers -- extended follow up, (1987) 31 *Annals of Occupational Hygiene*, 657-663.
- SHAPIRO, S A, & MCGARITY, T O, Reorienting OSHA: Regulatory Alternatives and Legislative Reform, (1989) 6 *Yale Journal on Regulation*, 1-63.
- SHAW, L & SICHEL, S, (1971) *Accident Proneness*, Oxford: Pergamon.
- SHULMAN, N, The Long Winding Road, (1991) 38 (1) *Accident Prevention*, 9-10.
- SIMNATO, L, FLETCHER, A C, CHERRIE, J, ANDERSEN, A, BERTAZZI, P A, CHARNAY, N, CLAUDE, J, DODGSON, J, ESTEVE, J, FRENTZEL-BEYME, R, GARDNER, M J, JENSEN, O M, OLSEN, J H, TEPPLO, L, WINKELMANN, R, WESTERHOLM, P, WINTER, P D, ZOCCHETTI, C & SARACCI, R, The International Agency for Research on Cancer Historical Cohort Study of MMMF Production Workers in Seven European Countries: Extension of the Follow-up, (1987) 31 *Annals of Occupational Hygiene*, 603-623.
- _____, & SARACCI, R, Cancer, Occupational, *Encyclopaedia of Occupational Health and Safety*, Vol I, (1983) Geneva: ILO, 369.

- SLOVIC, P., FISCHHOFF, B. & LICHTENSTEIN, S, in *Societal Risk Assessment: How safe is safe enough?* R.C. Schwing & W.A. Albers, (Eds.), (1980) New York: Plenum Press.
- SOMERS, H M & A R, *Workmen's Compensation: Prevention, Insurance and Rehabilitation of Occupational Disability*, (1954) New York: John Wiley.
- STAPLETON, J, *Disease and the Compensation Debate*, (1986) Oxford: Clarendon.
- _____, Law, Causation and Common Sense, (1988) 8 *Oxford Journal of Legal Studies*, 111-131, 111.
- STELLMAN, J M & DAUM, S M, *Work is Dangerous to Your Health*, (1973) New York: Vintage Books.
- STOREY, W R, *Targets for Road Safety 1991-93*, (1991) Wellington: Minister of Transport
- SUCCESS AND FAILURE IN ACCIDENT PREVENTION* (1975) London: HMSO.
- SURRY, J, *Industrial Accident Research: A Human Engineering Appraisal*, (1969) Toronto: University of Toronto, 165.
- SWANKIN, D, Washington Report, (1989) 34 (12) *Professional Safety* 5 & 32.
- _____, Washington Report, (1990) 35 (1) *Professional Safety* 5 & 24.
- TAFLEER, S, Cost-benefit Analysis Proves a Tough Task, (1982) 2 (4) *High Technology*, 76-77.
- TECHNOLOGICAL CHANGE IN AUSTRALIA: REPORT OF THE COMMITTEE OF INQUIRY*, (1980) Canberra: AGPS, Vol 4, 441.
- TOMBS, S, Industrial Injuries in British Manufacturing Industry, (1990) 38 *The Sociological Review*, 324-343.
- TORKELSON, OXEN & ROWE, Toxicity of Vinyl Chloride as Determined by Repeated Exposure to Laboratory Animals, (1961) 22 *American Industrial Hygiene Journal*, 354-361.
- TOUHY, C J, & TREBILCOCK, M J, *Policy Options in the Regulation of Asbestos-related Health Hazards*, (1982) Toronto: Royal Commission on Matters of Health and Safety Arising from the Use of Asbestos in Ontario.
- TUMINARO, D J, Restructuring Workers' Compensation to Prevent Occupational Disease, (1989) 572 *Annals of the New York Academy of Sciences*, 286-290, 289.
- TYSON, F R, Don't make promises to OSHA you can't keep! (1989) 140 (4) *Safety and Health* 43-44.
- UNITED NATIONS, *Consolidated List of Products whose Consumption and/or sale have been banned, withdrawn, severely restricted, or not approved by Governments*, 2nd Issue, (1986) New York: United Nations.

VICTORIAN OCCUPATIONAL HEALTH AND SAFETY COMMISSION, *A Greater Awareness: A Review of the Occupational Health and Safety Act 1985*, (1989) Melbourne: Occupational Health and Safety Commission.

_____, Commissioner Profiles: K Hely, *Update* (1989) 4 (2), 2.

VICTORIA'S PLAN TO GAOL OHS OFFENDERS ANGERS EMPLOYERS, (1991) 1 (2) *SafAct*, 37-39.

VISCUSI, W K, *Risk by Choice: Regulating Health and Safety in the Workplace* (1983) Cambridge MA: Harvard UP.

_____, The Structure and Enforcement of Job Safety Regulation, (1986) 73 *Law & Contemporary Problems*, 127-150.

_____, Job hazards and Worker Quit Rates: An Analysis of Adaptive Worker Behaviour, (1979) 20 *International Economic Review* 29-58.

VON EBERS, D, The Application of Criminal Homicide Statutes to Work-related Deaths: *Mens Rea* and *Deterrence*, (1986) V 1986, N 3, *University of Illinois Law Review*, 969-999, 999.

WALKER, I K, *Occupational Safety: An inquiry into the co-ordination of legislation on industrial safety, health and welfare* (1981) Wellington: State Services Commission.

WALTERS, D, Health and Safety and Trade Union Workplace Organisation: A Case Study in the Printing Industry, (1987) 18 *Industrial Relations Journal*, 40-9.

_____, *Worker Participation in Health and Safety: A European Comparison*, (1990) London: Institute of Employment Rights.

WALTER, J, BENSON, P B & SCOTT, R B, *Oxford Companion for Medicine*, (1986) Oxford: Oxford UP.

WEILER, P, *Reshaping Workers' Compensation for Ontario*, (1980) Toronto: A Report submitted to the Minister of Labour.

WEISS, M, The Industrial relations of Occupational Health: The Impact of the framework directive on the Federal Republic of Germany, (1990) 6 *International Journal of Comparative Labour Law and Industrial Relations*, 119-128.

WIGGLESWORTH, E C, Legislation and Injury Control, (1978) 18 *Medicine, Science and the Law*, 191-9.

_____, *How effective is Safety Legislation? The Harold Thomas Oration International Conference*, (1986) Adelaide, Mimeo.

WILSON, G K, *The Politics of Safety and Health: Occupational Safety and Health in the United States and Britain*, (1985) Oxford: Clarendon Press.

WILSON, S R, Occupational diseases -- the problem of a comprehensive system of coverage, (1880) 11 *Industrial Law Journal*, 141-166.

WOOD, F L W, *New Zealand in the World* (1940) Wellington: Dept Internal Affairs.

WORKERS' COMPENSATION BOARD, *Annual Report and Statement of Accounts for the Year ended 31 March 1969*.

WORLD HEALTH ORGANISATION, *The Work of WHO 1978-1979: Biennial Report of the Director-General* (1980) Geneva: WHO, xi.

_____, *IDENTIFICATION AND CONTROL OF WORK-RELATED DISEASES*
Report of a WHO Expert Committee, Technical Report Series 714, (1985) Geneva: WHO.

Your life is now worth \$2 million, *Motoring Today* 14 July 1991.

ZEILHUIS, R L & WIBOWO, A A E, Standard Setting in Occupational Health: "Philosophical" Issues, (1989) *American Journal of Industrial Medicine* 569-598, 586.