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Safety and Health at Work

Report of the Committee
1970-72

Chairman
LORD ROBENS

*Presented to Parliament by
the Secretary of State for Employment
by Command of Her Majesty
July 1972*

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To the Right Honourable Maurice Macmillan, M.P., Secretary of State for Employment

Sir,

We were appointed on 29th May 1970 by the Right Honourable Barbara Castle, M.P., then Secretary of State for Employment and Productivity, as a Committee of Inquiry with the following terms of reference:

To review the provision made for the safety and health of persons in the course of their employment (other than transport workers while directly engaged on transport operations and who are covered by other provisions) and to consider whether any changes are needed in:

(1) the scope or nature of the major relevant enactments, or

(2) the nature and extent of voluntary action concerned with these matters, and

to consider whether any further steps are required to safeguard members of the public from hazards, other than general environmental pollution, arising in connection with activities in industrial and commercial premises and construction sites, and to make recommendations.

We now have the honour to submit our Report.

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9th June 1972

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ABBREVIATIONS USED IN THE REPORT

AFD	Appointed Factory Doctor
CAI	Central Advisory Inspectorate
CBI	Confederation of British Industry
DHSS	Department of Health and Social Security
DTI	Department of Trade and Industry
EEC	European Economic Community
EETUJPTU	Electrical, Electronic and Telecommunications Union/Plumbing Trades Union
EMAS	Employment Medical Advisory Service
HMFI	Her Majesty's Factory Inspectorate
JIC	Joint Industrial Council
NCB	National Coal Board
NHS	National Health Service
NRPB	National Radiological Protection Board
OSRP Act	Offices, Shops and Railway Premises Act 1963
RoSPA	Royal Society for the Prevention of Accidents
SMRE	Safety in Mines Research Establishment
TUC	Trades Union Congress
UKAEA	United Kingdom Atomic Energy Authority

PREFACE

1. We were appointed on 29th May 1970 with the following terms of reference:

"To review the provision made for the safety and health of persons in the course of their employment (other than transport workers while directly engaged on transport operations and who are covered by other provisions) and to consider whether any changes are needed in:

- (1) the scope or nature of the major relevant enactments, or
- (2) the nature and extent of voluntary action concerned with these matters, and

to consider whether any further steps are required to safeguard members of the public from hazards, other than general environmental pollution, arising in connection with activities in industrial and commercial premises and construction sites, and to make recommendations".

2. The task given to us was indeed a formidable one. Safety and health at work is a vast, diverse and complex field of study. No one can speak authoritatively on all of its facets and aspects, and in presenting this report we make no large claims. There can be no such thing as a definitive report on this subject. We can only hope to have made a constructive contribution. It might help to put our findings in perspective if we make a few preliminary points about some of the problems we encountered in tackling our remit, and about what we have tried to do.

Problems encountered

3. The first set of problems concerned difficulties in defining the boundaries of our terms of reference. It was indicated that we should not get involved in the subject of transport safety, or in the subject of general environmental pollution. Each of these is a large and difficult area of study in its own right. To have attempted to bring them within the compass of our work would have made for a virtually unmanageable Inquiry. Nevertheless there are many obvious connections between safety and health at work, public safety, transport safety and environmental pollution; and it can never be wholly satisfactory to discuss one set of problems in isolation from other sets of problems which are closely related. For example, since places of work are the source of much that pollutes the general environment, it is apparent that control of the working environment and control of the external environment must be two closely related tasks. The issues here are complex, and we had no authority to probe very far into the arrangements for control over general environmental pollution. We do, however, make a number of relevant comments and recommendations in chapter 4 and elsewhere. To take another example, we considered that we were precluded from going into the question of the safe transport of dangerous substances, although this was a matter frequently raised with us during the course of the Inquiry. There were other difficulties of this kind. We found it difficult, as chapter 12 makes clear, to discuss the organisation of occupational

medicine without getting involved in much wider issues concerning the organisation of medicine generally in this country. Or again, whilst the subject of compensation for personal injury was not within our terms of reference, we found it impossible to ignore the evidence of the effects of the present system of compensation upon the making and implementation of measures for accident prevention. Safety and health at work is not a subject that is easily delimited.

4. A second difficulty of a somewhat similar nature lay in the close inter-relationships between the various topics comprised under the broad heading of safety and health at work. In drafting our report we were constantly faced with the choice of being either repetitive or cryptic. The subject does not divide easily into self-contained compartments. The nature of the solution to problems in one area often depends on the nature of the solution adopted for problems in another. For example, much of what we say in chapter 9 about legal sanctions inter-plays with much that is said in chapter 7 about the work of the inspectorates; much that is said in chapter 5 about the form and content of new legislation has to be read in the light of what is said in the opening chapters; and so on. Inevitably, the chapter-structure is an arbitrary one. To be properly understood the report should read as a whole, and each recommendation should be viewed in that total context.

5. The third major problem was to find the right level at which to pitch the analysis and discussion. We were expected to deal with fundamental issues of principle and with broad questions of policy and organisation. In doing so we have frequently quoted detail by way of illustrative example. But the extent to which we have been able to go into matters of detail has been severely limited. Consequently there are many particular hurdles that we have not attempted to jump. This means that some who read this report may look in vain for detailed comments upon a particular matter of special concern to them. More generally, it means that some of the defects of over-compression are inevitable in a report of this compass. Much more could be written. But very long reports are seldom read. We hope, nevertheless, that we have been able to avoid being superficial, and that we have made the reasons for our findings and recommendations clear.

Sources of material

6. The procedure we followed is described in Appendix 1. Our findings are based on the study of a great deal of material and on discussions with many people over the course of two years. We received written submissions from 183 organisations and individuals, some of whom also gave oral evidence (see Appendix 2). We had many informal talks with inspectors, administrators, industrialists, trade unionists, and others. We made a number of visits both at home and overseas for discussions on the spot with managers, workpeople and government officials (see Appendix 3). We are deeply indebted to the many people here and abroad who took time and trouble to give us their views and who generously afforded us facilities.

7. The footnotes throughout this report, and the bibliography at the end (Appendix 14) give some indication of the range of literature that we consulted. We also had the benefit of a number of reviews of research on various topics

Preface

(see Appendix 4). For their assistance in arranging this review programme we owe thanks to G. C. Drew, Professor of Psychology at the University of London, J. E. T. Eldridge, Professor of Sociology at Bradford University, and B. Shackel, Professor of Ergonomics at the University of Technology, Loughborough.

8. A volume of selections from the written evidence is being published as a companion volume to this report. In the text of the report we have not, as a general rule, attempted to attribute views to particular organisations or individuals. We have done this in, a few cases where it seemed apt, but to have attempted to do so throughout would have been an invidious task since so many similar suggestions emanated from many different quarters, often with slight variations; and it would have greatly increased the length of the report. Those who helped us will be able to judge for themselves the extent to which their contributions influenced our thinking. The final outcome is the product of many minds. We hope that it will establish a set of principles and practical guide-lines for work in this field for many years ahead.

Layout of the report

9. The following brief explanation of the chapter-structure of the report may be helpful to the reader.

Chapter 1 discusses the main elements of present' statutory provision for safety and health at work, and the relationship between the statutory and voluntary elements of the system. It summarises our main criticisms of the present statutory arrangements.

Chapters 2 and 3 emphasise the importance of self-help and self-regulation through better safety and health organisation at the workplace, and through action at industry level.

Chapter 4 picks up the criticisms made in chapter 1 and, in the light of chapters 1 to 3, presents proposals for new legislative and institutional arrangements to provide a framework for more effective statutory and voluntary activity.

Chapters 5 to 9 discuss the principles and objectives that should determine the form, content and scope of new legislation, standard-setting and inspection.

Chapters 10 to 17 deal with particular topics within the broad context of the general proposals made in earlier chapters.

Chapter 18 summarises the main conclusions and recommendations contained in the report.

Chapter 19 outlines a programme of action.

CHAPTER 1

WHAT IS WRONG WITH THE SYSTEM?

The nature of the problem

10. Every year something like 1,000 people are killed at their work in this country. Every year about half a million suffer injuries in varying degrees of severity. 23 million working days are lost annually on account of industrial injury and disease. *

11. We shall have something to say in a later chapter about the validity of some of these figures, and about the need for caution in drawing conclusions from them. But whatever qualifications and reservations may be made, the orders of magnitude are plain enough. It is unnecessary to dwell on what the bare statistics mean in terms of human tragedy and suffering; nor on the economic cost to the nation in terms of lost production and diverted resources : t the rough figures, however imperfect, speak for themselves. For both humanitarian and economic reasons, no society can accept with complacency that such levels of death, injury, disease and waste must be regarded as the inevitable price of meeting its needs for goods and services.

12. We have no wish to overstate or exaggerate. International statistics suggest that the state of safety and health at work in this country compares favourably with that in most other industrialised nations.t But valid international comparisons are notoriously difficult to make because of differences in definitions, classifications and methods used in the collation of national statistics, not to mention the effect of underlying differences in industrial structures. It is difficult to draw any reliable conclusions from such comparisons; and in any event they offer little comfort to those who get hurt.

13. We do not suggest that our society does view this picture with complacency, still less with indifference. Yet our deliberations over the course of two years have left us in no doubt that the most important single reason for accidents at work is apathy. There is a curious paradox here. Society as a whole reacts keenly to major disasters. There is also some ephemeral reaction to the annual statistics of industrial death and injury. But safety is mainly a matter of the day-to-day attitudes and reactions of the individual, and whatever the total picture the fact is that serious accidents at work are rare events in the experience of individuals. Even rarer is personal awareness of the more subtle hazards of insidious diseases which manifest themselves long after periods of exposure in an unhealthy working environment. Many practical implications flow from this. Perhaps the most important is that if individual experience is not in the normal course conducive to safety awareness, then safety awareness must be deliberately fostered by as many specific methods as can be devised. We believe

* See Tables 1, 2 and 3. The statistics we have used in these Tables, as a background to our deliberations, cover the decade 1961-1970.

t Amounting to something in the region of £200 million annually—see Part III of Appendix 9. See Table 4.

What is wrong with the system?

that more effective safety awareness in industry and commerce can only be developed by an accumulation of influences and pressures operating at many levels—that of the boardroom, the senior manager, the supervisor, the trade unions, the worker on the shop-floor—and operating in a variety of ways through education and training, through the provision of better information and advice, through practical, co-operative organisation and action, through legal sanctions where necessary, through research, publicity and so on. There is no single panacea and there are no simple short cuts. Progress in this field will rarely be dramatic. But we believe that by patient and unremitting effort it is possible to raise the status, so to speak, of the subject of safety and health at work in the minds of individuals. We should like to see it eventually command something like the degree of interest and attention commonly accorded to other subjects—such as industrial relations—where the problems may be more controversial but are often less real and important in terms of human well-being.

The nature and background of this Inquiry

14. Our terms of reference invited us to consider whether any changes are needed in the scope or nature of the enactments dealing with occupational safety and health, in measures for protecting the public against hazards of industrial origin, or in the nature and extent of voluntary action concerned with these matters. We began therefore by asking ourselves: what (if anything) is wrong with the present system?

15. By 'system' we mean here the whole complex of arrangements and activities, whether of a statutory or voluntary nature, which seek to protect and promote the safety and health of people at work, and to protect the public from hazards of industrial origin. The system can be seen as comprising two very broad elements: regulation and supervision by the state, and industrial self-regulation and self-help. The most fundamental issues before us are concerned with the relationship, balance and interaction between these two broad elements. In this chapter we begin by examining the main features of the regulatory element and its place in the system as a whole. First, however, it may be helpful to reflect upon the reasons for looking afresh at the total picture at this point in time.

16. One reason is simply that there has never been a comprehensive review of the subject as a whole. Over the years many commissions and committees have been appointed to enquire into areas or segments of the subject. To take a few examples, there was the 1876 Royal Commission on the Factory and Workshops Acts, the 1938 Royal Commission on Safety in Coalmines, the 1949 Gowers Committee of Enquiry on Health, Welfare and Safety in Non-Industrial Employment, and the 1951 Dale Committee of Enquiry on Industrial Health Services. There have been many others. But so far as we can discover we are the first Committee which has been asked to look at the subject as a whole in all of its aspects. We think that this review, with its wide perspective, has been a valuable and salutary exercise for all those associated with it. Many Of the findings and recommendations in this report could not have emerged from a partial examination of the field.

17. But there are more pressing reasons for a searching review and re-consideration of the subject of safety and health at work. The current levels of accidents and disease at work are disturbing, but it has usually been possible to find some comfort in the long-term statistical trends over the years. Viewed historically there has been a remarkable fall in the incidence rate of industrial fatalities in this country. In the decade 1961-1970 the fatality rate in factories (annual rate of fatal accidents per 100,000 people employed, averaged over a 10 year period) was 4.5. The comparable figure for the first decade of this century was 17.5.* Moreover no one doubts that working conditions generally have steadily improved. There are a number of reasons why one would expect history to show this favourable long-term trend. Standards rise in response to steadily rising expectations in society generally. Technological development makes possible improvements in methods of control and prevention. Better medical services reduce fatality rates. And so on. But what of the future? Is it reasonable to assume that the long-term underlying trend will continue to be favourable? The evidence and indications are not reassuring. If we look at the annual figures for work fatalities over the decade 1961-1970, no unequivocally clear trend is discernible; and the number of all reported accidents rose steadily during the first half of the decade.^t As we discuss later in chapter 15, the statistics of reportable accidents may be affected by factors unconnected with actual safety performance. But whatever qualifications or reservations may be attached to the statistics, common prudence requires us to consider very seriously whether we may not have reached some sort of plateau in occupational safety and health performance. If this is the case, what are the reasons for it? Is it because, as has been suggested, the traditional approaches to prevention and control are subject to the law of diminishing returns? Or is it that despite the solution of many safety and health problems by the application of new technologies, the increasing scale and complexity of modern industry is creating new hazards to the extent that the historical long-term trend towards safer and healthier work is in danger of being halted? If some kind of performance plateau has indeed been reached, will the eventual movement from it be in a favourable or unfavourable direction?

18. These are serious and disturbing questions. Even if we discount the admittedly imperfect statistical evidence, direct observation suggests that we may well have arrived at a situation which calls for some radical re-thinking if we are to cope in future with the changing nature of occupational safety and health problems. Two specific illustrations might make this point clearer. First, the problem of toxic substances. In recent years, widely publicised compensation cases concerning asbestosis and bladder cancer have stimulated public concern about the insidious and potentially deadly nature of the long-term risks to which certain groups of workers may be exposed. Of course, the use in industry of toxic substances and materials that can in certain circumstances damage the health of those who work with them is by no means new. What is new is the rapid increase in the number of new chemical substances and mixtures being brought into use in industrial and commercial processes, and the greatly increased scale on which they are used. During the course of the Inquiry

* 1970 *Annual Report of HM Chief Inspector of Factories*. Cmnd 4758, HMSO 1971.

^t See Tables 1 and 2.

What is wrong with the system?

we were made aware of the existence of much anxiety about this. Alarmism does not help, but the anxiety is not without foundation. In 1968, for example, there were 112 deaths from asbestosis. Given the increasing use in manufacturing processes of substances and materials which can have harmful effects, what does the future hold? At the very least such a question must make us pause and weigh seriously the adequacy of our understanding of these problems, and the effectiveness of our traditional approaches to them.

19. Our second illustration is concerned with another aspect of contemporary industrial development. Today, materials which are intrinsically dangerous because of their explosive or flammable properties are now being stored and used on a scale undreamed of even a decade ago. Despite the great advances made in control technology, it would be foolish to ignore the potentialities of this relatively new situation, and irresponsible merely to assume that the improbable will not happen. It is a melancholy fact that much of our preventive legislation was introduced following events that were both unforeseen and disastrous. Thus the thalidomide tragedy led to a new system of control over the production and marketing of new drugs; the Aberfan disaster was followed by new legislation on the control of mine tips; the death of 8 people in a fire at Eastwood Mills, Keighley, had a significant effect on the drafting of the fire safety provisions of the 1959 Factories Act; and so on. The safety system must look to future possibilities as well as to past experience.

20. We have quoted as examples of reasons for radical re-thinking the growing problems associated with toxic and explosive substances. There are other reasons of a different character. The present corpus of occupational safety and health legislation has its roots in earlier legislation introduced in a quite different social context. Attitudes and expectations about authority and decision-making have changed. Increasingly, employers and workers expect to take an active part in the making and application of legislation of this kind. How well does the traditional regulatory approach meet and utilise these expectations?

21. It is indisputable that the problems associated with safety and health at work are changing more rapidly now than in the past. There are no good reasons for merely assuming that our traditional approach to the control of these problems necessarily corresponds to what is really needed today or to what may be needed in the future. The traditional approach is based on an extensive system of detailed statutory provisions administered and enforced by government departments and local authorities. There is little doubt that it has served us well in the past, although in the nature of things this is difficult to demonstrate. Does it still do so? Can it be improved? We begin by looking at its main elements.

The legal provisions and their enforcement

22. The history of industrial safety legislation, which is very briefly summarised in Appendix 5, is well documented and has been much analysed. Many commentators have drawn attention to the way in which the legislation emerged in remarkably piecemeal fashion decade after decade. None has put

the matter more aptly than Sidney Webb who, in 1910, in his preface to Hutchins and Harrison's *A History of Factory Legislation** commented that:

'This century of experiment in factory legislation affords a typical example of English practical empiricism. We began with no abstract theory of social justice or the rights of man. We seem always to have been incapable even of taking a general view of the subject we were legislating upon. Each successive statute aimed at remedying a single ascertained evil. It was in vain that objectors urged that other evils, no more defensible, existed in other trades or amongst other classes, or with persons of ages other than those to which the particular Bill applied. Neither logic nor consistency, neither the over-nice consideration of even-handed justice nor the quixotic appeal of a general humanitarianism, was permitted to stand in the way of a practical remedy for a proved wrong'.

23. This practical, empirical approach has been associated with the development of high standards of safety and health protection, and with the attainment of a degree of systematic official supervision which is probably unsurpassed anywhere in the world. Paradoxically, however, this source of strength is also a source of weakness. It results in a body of detailed law which must be constantly extended and elaborated to deal with new problems. In an age of rapid change in industrial structures and technologies as well as in social attitudes and expectations, this traditional empirical approach cannot keep pace. That it leads eventually to confusion is, we think, apparent on any view of the pattern and content of the statutory provisions and arrangements that have emerged from the historical process.

24. Existing safety and health legislation applying to workplaces can be divided into three broad categories. In the first category there are five major Acts, with their supporting orders and regulations, which seek to promote the health and safety of large sections of the working population. Statutory provisions for the health and safety of some 84 million employees in factories, shipyards, docks and construction sites are contained in the *Factories Act 1961* and its supporting orders and regulations. About 8 million employees in offices, shops and railway premises are covered by the provisions of the *Offices, Shops and Railway Premises Act 1963*. These two Acts are administered by the Department of Employment and enforced partly by its Factory Inspectorate and partly by local authorities. The latter have some limited enforcement duties under the Factories Act, and are responsible for inspecting the bulk of premises subject to the OSH Act. Provisions for the safety and health of those employed in mines and quarries (about 345,000) are contained mainly in the *Mines and Quarries Act 1954*, administered and enforced by the Department of Trade and Industry and its Inspectorate of Mines and Quarries. Employees in agriculture (about 340,000) are covered by the provisions of the *Agriculture (Poisonous Substances) Act 1952*, and the *Agriculture (Safety, Health and Welfare Provisions) Act 1956*. These two Acts are enforced by safety inspectors and field officers of the Ministry of Agriculture, Fisheries and Food and the Department of Agriculture and Fisheries for Scotland.

* *A History of Factory Legislation* by B. L. Hutchins and A. Harrison, Third Edition 1966, Frank Cass & Co Ltd. Quotation reprinted by kind permission of the publishers.

What is wrong with the system?

25. The second category includes a number of Acts which provide for special regimes of control over certain specified industrial activities and substances. The Home Office and its Explosives Inspectorate are responsible for the administration and enforcement of the *Explosives Act 1875*, as amended by the *Explosives Act 1923*, which control, by a system of licensing, regulations and inspection, the manufacture, storage, importation, acquisition and conveyance of conventional explosives. Enforcement is divided between the Explosives Inspectorate and the local authorities, the latter being responsible for most of the work in connection with explosives stores and registered premises. The security aspects of this work are important, and here the local authorities are advised by the police. The Home Office is also responsible for the *Petroleum (Consolidation) Act 1928*, which provides for controls over the storage and conveyance of petroleum spirit. The original controls have been extended to cover petroleum mixtures and certain other substances. Day-to-day enforcement is in the hands of local authorities. Nuclear installations (other than those operated by the United Kingdom Atomic Energy Authority and government departments) are subject to the licensing and other provisions of the *Nuclear Installations Acts 1965 and 1999*. These are administered and enforced by the Department of Trade and Industry and its Nuclear Installations Inspectorate.

26. The third category comprises legislation dealing mainly with emissions and effluents from workplaces. This category lies across the borderline between occupational safety legislation and the broad area of legislation dealing with general public health and environmental pollution (a point which we made in our preface and which we discuss further in chapter 4). We decided to include in our initial examination two items of legislation within this category. The *Radioactive Substances Act 1960* requires that all users of radioactive substances must be registered, and that arrangements for the disposal of radioactive wastes must be authorised. The Act is administered in England and Wales by the Department of the Environment, which employs radiochemical inspectors to deal with the technical aspects of this work. The Department of the Environment is also responsible for administering the *Alkali, etc. Works Regulation Act 1906* which imposes controls over emissions to air from certain designated classes of workplace. Enforcement is by the Department's Alkali and Clean Air Inspectorate. There is a separate Alkali Act for Scotland, administered by the Scottish Development Department and the Scottish Industrial Pollution Inspectorate.

27. We summarise basic factual details about this legislation and the enforcing agencies in Appendix 6. Various aspects of the legislation are discussed in more detail in other chapters. At this point we want to try to set out what we consider to be the main ways in which this regulatory system is unsatisfactory and in need of change. We identify and discuss below three broad areas of criticism concerning first, the multiplicity of the statutory provisions; secondly, certain intrinsic weaknesses of those provisions; and thirdly, the fragmentation of administrative jurisdictions.

Defects of the statutory system

28. The first and perhaps most fundamental defect of the statutory system is simply that there is too much law. The nine main groups of statutes which

we have mentioned above* are supported by nearly 500 subordinate statutory instruments containing detailed provisions of varying length and complexity. They are added to every year (107 statutory instruments have been issued under the Factories Act since 1960). It was argued in some submissions made to us that the sheer mass of this law, far from advancing the cause of safety and health, may well have reached the point where it becomes counter-productive. We share this view. The existence of such a mass of law has an unfortunate and all-pervading psychological effect. People are heavily conditioned to think of safety and health at work as in the first and most important instance a matter of detailed rules imposed by external agencies. We have encountered this instinctive reaction many times during the course of our Inquiry. It was reflected, for example, in the attitude of those who argued that standards would be improved if workplaces were visited much more frequently by inspectors. Given the hundreds of thousands of workplaces in the country, this approach is manifestly impracticable. The matter goes deeper. We suggested at the outset that apathy is the greatest single contributing factor to accidents at work. This attitude will not be cured so long as people are encouraged to think that safety and health at work can be ensured by an ever-expanding body of legal regulations enforced by an ever-increasing army of inspectors. *The primary responsibility for doing something about the present levels of occupational accidents and disease lies with those who create the risks and those who work with them.* The point is quite crucial. Our present system encourages rather too much reliance on state regulation, and rather too little on personal responsibility and voluntary, self-generating effort. This imbalance must be redressed. A start should be made by reducing the sheer weight of the legislation. There is a role in this field for regulatory law and a role for government action. But these roles should be predominantly concerned not with detailed prescriptions for innumerable day-to-day circumstances but with influencing attitudes and with creating a framework for better safety and health organisation and action by industry itself.

29. The second main defect is that not only is there too much law, but too much of the existing law is intrinsically unsatisfactory. The legislation is badly structured, and the attempt to cover contingency after contingency has resulted in a degree of elaboration, detail and complexity that deters even the most determined reader. It is written in a language and style that renders it largely unintelligible to those whose actions it is intended to influence. Line managers, supervisors and shop-floor operatives are not legal experts:^t Even the personnel of the inspectorates experience difficulty in picking their way through it all. Moreover, neither Parliament nor civil service administrators can cope with the task of keeping this huge and detailed body of law up to date. Obsolescence is a chronic disease of the statutory safety provisions and yet clearly, unless the provisions are in tune with modern technology and knowledge they are more likely to be a hindrance than a help. For example, the Explosives and Petroleum (Consolidation) Acts—both of venerable age—are badly in need of

The following nine sectors can be identified, each with its own controlling statute or statutes:—factories, commercial premises, mining and quarrying, agriculture, explosives, petroleum, nuclear installations, radioactive substances, and alkali etc. works.

^t RoSPA told us that many of the queries they receive from industry arise from inability to understand the complex language of the statutory provisions.

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revision, a fact which the Home Office readily acknowledges. The present Factories Act, enacted in 1961, is in main substance little more than a consolidation of previous Acts dating back to 1937. Industrial safety law is littered with obsolete or obsolescent provisions. The Chemical Works Regulations were introduced in 1922, long before the development of the present scale and complexity of modern petrochemical technology. The Lead Compounds Manufacture Regulations 1921 deal with a lead-making process which is no longer in use. It is difficult to see what significant application there can be today for the File-Cutting by Hand Regulations 1903, the Felt Hats Manufacture Regulations 1902, or the Factories (Standards of Lighting) Regulations 1941. The accelerating rate of technological change,* coupled with the difficulties experienced in amending or revoking old regulations, creates a situation in which the maintenance and up-dating of a corpus of legislation of this type, size and complexity is an endless and increasingly hopeless task.

30. Again, the matter goes deeper. The law on this subject comprises an haphazard mass of ill-assorted and intricate detail partly as a result of concentration upon one particular type of target. With some notable exceptions here and there, the great bulk of the existing provisions are concerned with physical circumstances—the safeguarding of machinery, the provision of adequate lighting and ventilation, and so on. These things are important. But it has long been widely accepted that equally important factors in safety and health at work are the attitudes, capacities and performance of people and the efficiency of the organisational systems within which they work. This is not yet adequately reflected in the legislation. As a result, much of the legislation appears irrelevant to the real, underlying problems. Some four-fifths of all accidents reported in recent years under the Factories Act are said to arise from such apparently simple causes as handling materials, falling, striking against objects, being struck by falling objects, and the mis-use of hand tools. These are sometimes referred to collectively as the 'common accidents'. We are told that few of these accidents—perhaps only one in six—involve a breach of a specific regulation. In a survey of construction sites in 1966^t a team of factory inspectors kept 140 sites under surveillance for six months. Of the 270 reportable accidents that happened during the survey, only 50 (19%) could be regarded as due to clear breaches of regulations. Furthermore it was considered that additional regulations would not have helped because most of the accidents were associated with habits of work, general site tidiness and human error.

31. It is not to underrate the importance of physical safeguards to say that preoccupation with the physical environment has tended to dominate this field to the neglect of equally important human and organisational factors, such as the roles of training and joint consultation, the arrangements for monitoring safety performance, or the influence of work-systems and organisation upon attitudes and behaviour. We believe that a deliberate effort must be made to redress this imbalance. This is all the more important because we appear to

* 'We now face a new technology. The Inspectorate is now concerned with an industrial system where virtually anything is possible'. *1970 Annual Report of TIM Chief Inspector of Factories*. Cmnd 4758, HMSO 1971.

^t *Accidents in the Construction Industry—Report of a Survey made during 1966*. HMSO 1967.

have reached the stage where the traditional approach may be running out of steam. As the Chief Inspector of Factories wrote in his Annual Report for 1969 :

'We have now reached a state where many of the causes of serious accidents which were once common have been brought under control, at least in most places most of the time. Methods of guarding have been greatly improved . . . a very large number of the accidents which can readily be prevented by physical means are now prevented . . . yet reported accidents continue to

32. We have suggested that there is too much law, and that too much of the law is unsatisfactory. We now turn to a third major problem area—the fragmentation of administrative jurisdictions. Let it be said at once that of course administration has to be divided up into manageable units, and boundary lines have to be drawn somewhere. The machinery of government cannot be monolithic. But if there is no 'right' way of dividing up administrative responsibilities, some ways are better than others. What disturbs us about industrial safety and health administration is that there are too many demarcation lines, and that they appear to have emerged more by historical accident than by design. The pattern of control is one of bewildering complexity. There are nine separate groups of health and safety statutes dealing, respectively, with factories, commercial premises, mining and quarrying, agriculture, explosives, petroleum, nuclear installations, radioactive waste disposal and alkali emissions. In England alone responsibilities for administration and enforcement are divided between five government departments (Employment, Trade and Industry, Agriculture, Environment and the Home Office) and seven separate inspectorates (factories, mines, agriculture, explosives, nuclear installations, radiochemical and alkali). In addition, there is extensive participation by local authorities.

33. This tangle of jurisdictions is associated with a number of problems. The jurisdictional boundary lines do not coincide to provide a clear and comprehensive system of official provision for safety and health at work. On the one hand the separately-administered statutes, taken together, cover nothing like the whole of the working population. On the other hand, some of them overlap in ways that can create uncertainty and confusion. Worse, the fragmentation of the legislation and its administration makes the task of harmonising, servicing and up-dating the various statutory provisions extremely difficult; and it diffuses and compartmentalises the expertise and facilities that are available to deal with occupational hazards.

34. These points can be illustrated at three main levels :— the level of the workplace, the level of the inspectorates, and the level of policy and law-making.

35. *At the level of the individual workplace*, one establishment may be subject to a multiplicity of safety and health provisions under a number of Acts and sets of regulations. At the other extreme some Workplaces fall entirely outside the scope of the existing provisions. The Department of Employment estimates

* 1964 Annual Report of HM Chief Inspector of Factories. Cmnd 4461, HMSO 1970.

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that something like five million workpeople are employed at premises not subject to any statutory provisions for occupational safety and health. These include people working in road haulage depots, airports, schools, hospitals and so on. In contrast, the various parts of a chemical works, for example, might be subject to a wide range of substantive provisions and subordinate regulations under the Factories Act, the OSRP Act, the Petroleum (Consolidation) Act and the Alkali Act, and to the attentions of a number of separate inspectorates. A similar situation arises at nuclear installations and at explosives factories. It is true that a wide variety of safety and health problems can arise at certain kinds of workplace, but it is difficult to accept that the pattern of administrative controls needs to be as complex as this.

36. *At the level of the inspectorates*, the fact that the application of the statutory provisions--and with this the locus standi of the various enforcing agencies—is dependent upon a variety of definitions of premises, processes and activities results in demarcation lines of considerable complexity. For example, railway running sheds and workshops are subject to the Factories Act and to the attentions of the Factory Inspectorate, as are building operations on railway land; but works of engineering construction on existing railways are not. Railway premises such as signalboxes are inspected by the Factory Inspectorate under the Offices, Shops and Railway Premises Act, but shops and offices on railway premises are registered separately under the Act and inspected by local authorities. Similarly, whilst agricultural operations are subject to the Agriculture (Safety, Health and Welfare Provisions) Act 1956, certain manufacturing units on farms must be registered as factories and inspected by the Factory Inspectorate. Some agricultural activities such as grain drying, timber felling or land drainage are dealt with differently according to where they are done or who is doing them. And so on. We are in little doubt that more inspectorial and administrative time is wasted on demarcation matters than the administrative departments are commonly prepared to admit. Sometimes the various areas of jurisdiction overlap. Thus the Department of the Environment has responsibilities under the Radioactive Substances Act 1960 relating to all premises where radioactive substances are kept, whilst regulations under the Factories Act for the protection of factory employees from ionising radiations are enforced by the Factory Inspectorate. Similarly, provisions covering the safety of steam boilers in factories are enforced by the Factory Inspectorate. but under the Boiler Explosions Acts boiler explosions must also be reported for investigation by inspectors of the Department of Trade and Industry.

37. It is sometimes said that so far as the inspectorates are concerned these complexities are of little significance in practice. We do not accept that this is always the case. The sort of operational problem we have in mind is illustrated in the Dudgeons Wharf Report.* In that case, the local fire brigade was asked for advice about the demolition of empty tanks which had been used to store myrcene oil. After visiting the site, fire brigade officers came to the conclusion that the tank farm was or might be a factory, subject to the statutory provisions relating to factories. and accordingly within the province of the Factory Inspectorate' (Report, paragraph 42). The factory inspector, when he visited the site, was uncertain whether it fell within scope of the Factories Act or the

**Puhhr Inquiry into a fire el Midqeeris*

Cmnd 4470, HMSO September 1970.

Construction (General Provisions) Regulations 1961, and raised the matter with his superior. One cannot criticise the individuals concerned. The system demanded an answer to these questions, whereas what was needed was a speedy answer to the more important question of which experts were best equipped to advise on the actual situation. In the event, the legal point was still unresolved two weeks later when the explosion occurred which led to the public inquiry. We are not suggesting that the legalistic difficulty had any bearing upon what eventually happened in this particular case. The point we are making is that this is an illustration of the sort of situation where present legislative and administrative arrangements are liable to give rise to uncertainty, delay and problems of liaison. There was a liaison problem and a demarcation problem. Ostensibly the latter lay within one inspectorate. But the matter does not end there. The storage of many oil products is subject to licensing under the Petroleum (Consolidation) Act 1928, which is enforced by local authorities (sometimes the fire authority) advised, where necessary, by the Explosives Inspectorate of the Home Office. However, the storage of myrcene oil does not fall within these provisions. Consequently the Explosives Inspectorate was not involved in the history of the events, although the Chief Inspector of Explosives sat as one of the two Assessors at the subsequent public inquiry. We are not here concerned with the actual causes of the explosion at Dudgeons Wharf, which are dealt with at length in the official Report. We have, however, thought it worthwhile dwelling on certain administrative matters discussed in the Report which seem to illustrate the uncertainty that can arise at operational level over the question: who is best equipped to give advice on the actual situation? We are disturbed that administrative fragmentation in this field is such that the question is as likely to be answered by reference to legislative and administrative boundary lines as by reference to the technical content of the actual problem.

38. Dudgeons Wharf is a particular case. More generally, the effect of the fragmentation of jurisdictions is to diffuse and compartmentalize the expertise and resources of the inspection services. Dust hazards, electrical hazards, noise problems, the risks associated with unguarded machinery and with explosive, flammable and toxic substances can arise alike in factories, farms, mines and their immediate environments. Taken together the inspection services need to have a wide range of specialised expertise—mechanical engineers, civil engineers, chemical engineers, electrical engineers, and so on—and it seems wasteful to try to provide these within each of a number of separate inspectorates. There is a great deal of common ground, but our investigations revealed little evidence of regular working collaboration or cross-fertilisation of ideas and knowledge between the separate inspectorates.

39. *At the national level of policy-formulation and law-making*, the problems arising from fragmentation of administrative responsibility are more deep-seated. No government department with responsibilities in this field can take any major initiative without close and extensive consultation with several other departments which have similar or related interests and responsibilities. When difficulties arise, no single department is in a position to ensure progress. In our view the obsolescence and inadequacies of many of the existing statutory provisions and enforcing arrangements are in no small part due to the fact that

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where overlapping responsibilities are involved 'the need to have wide consultation may mean that all can move forward only at the pace of the slowest',* Departments are inclined to claim that a well-developed pattern of inter-departmental consultation takes care of the problem. The facts suggest otherwise. Again we illustrate the point by example. It is widely accepted that the controls over certain flammable and explosive substances provided by the Explosives and Petroleum (Consolidation) Acts ought to be extended to a number of extensively used substances with equal or greater danger potential, such as ammonium nitrate, the liquefied petroleum gases, phosgene, sulphur dioxide and liquid oxygen. To do this would require further extension, or preferably complete revision of, the Explosives and Petroleum (Consolidation) Acts. However, these Acts already overlap the field covered by the Factories Act which is the province of the Department of Employment. One major effect of revising and extending the scope of the Explosives and Petroleum (Consolidation) Acts would be to increase this area of overlap, with its attendant jurisdictional problems. An inter-departmental working party, including representatives of the Home Office, the Department of Employment, and other Departments, has been examining the whole question of administrative machinery for controlling the use of intrinsically dangerous substances since 1968. The fact that they have not yet, so far as we are aware, arrived at any firm conclusions on this very important matter seems to us at least in part an indication of how difficult it is to make progress at policy level on a subject where administrative responsibilities are heavily fragmented. This is a real problem, and not merely a question of administrative tidiness.

The objectives of future policy

40. We have outlined a number of major defects in the present statutory arrangements. These deficiencies are of a kind that cannot be cured by piecemeal improvements within the existing system. A thoroughgoing overhaul is needed.

41. One main objective of reform of the statutory arrangements should be the creation of a more unified and integrated system to increase the effectiveness of the state's contribution to safety and health at work. But reform is also needed to meet the criticisms we have made in this chapter concerning the effect of too much law of the wrong type upon the attitudes and actions of employers and work-people. This points to a second and related objective of the greatest importance. *The most fundamental conclusion to which our investigations have led us is this. There are severe practical limits on the extent to which progressively better standards of safety and health at work can be brought about through negative regulation by external agencies. We need a more effectively self-regulating system.* This calls for the acceptance and exercise of appropriate responsibilities at all levels within industry and commerce. It calls for better systems of safety organisation, for more management initiatives, and for more involvement of workpeople themselves. The objectives of future policy must therefore include not only increasing the effectiveness of the state's contribution to safety and health at work but also, and more importantly, creating the conditions for more effective self-regulation.

* *Report of the Committee of Inquiry on the Chill Service* (the Fulton Report) paragraph 158. Cmnd 3638, HMSO 1968.

42. We take a closer look at the 'voluntary' elements of the system in our next two chapters. We then go on, in chapters 4-6, to make proposals for a programme of reform in the law and its administration to meet the deficiencies noted in this chapter, and to provide a framework for more effective statutory and voluntary effort. We are under no illusions that the necessary changes will be easy to make. Yet we suspect that the greatest obstacle will be not so much the intrinsic complexities of the subject as the fact that many of the arrangements under review are long established. In the words of Bagehot, 'one of the greatest pains to human nature is the pain of a new idea'.*

* Quotation from *Physics and Politics*, reprinted by kind permission of Routledge and Kegan Paul Ltd.

CHAPTER 2

SAFETY AND HEALTH AT THE WORKPLACE

43. In the past, official inquiries on the subject of safety and health at work have tended to be almost exclusively concerned with details of the relevant legislation and of the arrangements for enforcing compliance with the statutory requirements. We have tried to avoid falling into this traditional preoccupation with the regulatory apparatus. Although much of this Report is inevitably concerned with the nature and effectiveness of the state's powers and activities in this field—and a great many detailed changes will be needed in the statutory arrangements within the general proposals that we put forward in subsequent chapters—we have tried throughout to keep in view the more fundamental issue. That is, how much can and should be looked for through the medium of legislation and state intervention, and how much through the voluntary efforts of employers and workpeople? Curiously enough this issue does not seem to have been much explored in previous official investigations, and the questions implicit in it have seldom been pressed very far. What is the nature of the accident problem? Who is in a position really to influence what happens? What should be done, and who should do it? What sort of contribution can legislation and state intervention usefully make? Before we can deal with the last question we must first consider the preceding questions.

44. There is no mystery about the basic elements of the problem. People get hurt on the shop floor. Accidents at work happen every day. If standards of safety and health at work are to be improved, this must be done through influences which operate continuously on the daily routine of the workplace. The most important influences are better attitudes and better organisation. It would be unnecessary to make such statements of the obvious but for the fact that their practical implications are widely ignored. We believe that too many employers, managers and workers are still inclined to look rather too much to state intervention and prescriptions, and rather too little to their own positive interests, responsibilities and efforts. In this chapter we discuss what should be done within the individual firm by employers and by workpeople. We go on in chapter 3 to discuss voluntary action at industry level, and in subsequent chapters to discuss the way in which the state's contribution should be organised, and the nature of that contribution.

45. At the level of the individual firm there are three prerequisites for progress towards a more effectively self-regulating system. First, there must be awareness of the importance of the subject of safety and health at work. Secondly, responsibilities, legal and otherwise, must be clearly defined. Thirdly, the nature of the problems must be methodically assessed, and the assessments translated into practical objectives and courses of action.

The role of management

46. Promotion of safety and health at work is an essential function of good management. We are not talking here about legal responsibilities. The job of

a director or senior manager is to manage. The boardroom has the influence, power and resources to take initiatives and to set the pattern. So far as the first of our prerequisites is concerned—awareness—the cue will be taken from the top. We know of a number of firms where the positive attitudes of the directors and senior managers are reflected in a remarkable degree of safety awareness at all levels throughout the firm. Conversely, if directors and senior managers are unable to find time to take a positive interest in safety and health, it is unrealistic to suppose that this will not adversely affect the attitudes and performance of junior managers, supervisors and employees on the shop floor. If, as we believe, the greatest obstacles to better standards of safety and health at work are indifference and apathy, employers must first look to their own attitudes. Moreover boardroom interest must be made effective. Good intentions at board level are useless if managers further down the chain and closer to what happens on the shop floor remain preoccupied exclusively with production problems.*

47. This takes us to the second and third of our prerequisites. The promotion of safety and health is not only a function of good management but it is, or ought to be, a normal management function—just as production or marketing is a normal function. The effective exercise of this function, as any other, depends upon the application of technique. Too many firms still appear to regard accidents as matters of chance, unpredictable and therefore not susceptible to 'management'. Too few appear to have made serious efforts to assess the total problem, to identify the underlying causes, or to quantify the costs. Too few make use of diagnostic and predictive techniques such as safety sampling or hazard analysis, or safety audits in which each aspect of workplace organisation and operation is subjected to a carefully planned and comprehensive safety survey; or systematic preventive procedures such as clearances for new equipment and processes, safe access permits and so on.

48. The spread within industry of a more scientific and systematic approach to accident prevention has been slow. It is many years since Heinrich began to develop his thesis that the conventional approach to prevention, by concentrating on injuries that had happened rather than on accidental occurrences that might be predicted, looked at only a fraction of the total problem and looked at it backwards.^t From his analysis a considerable body of literature and technique has developed, particularly in North America but also increasingly in this country. We were given a lecture demonstration on the application of 'damage control' in a steelworks, and we were also made aware of the interest and activities of specialist safety organisations in this country and overseas in promoting the technique of 'total loss control'. The essential import of these approaches is that the employer who wants to prevent injuries in the future, to reduce loss and damage, and to increase efficiency, must look systematically

* At one firm we visited, boardroom interest was exemplified in a policy statement setting out safety objectives and rules together with supporting arrangements for maintaining active interest at all levels. These included payment of a bonus to new entrants after passing a safety qualification test, monthly safety meetings in all departments, safety audits, and strict use of procedures such as clearance certificates for new equipment, safe-access working permits etc. The firm's accident frequency rate is about one-fifth of the rate for the particular industry.

H. W. Heinrich *Industrial Accident Prevention*. First published 1931. Fourth edition 1959 McGraw-Hill Book Company.

at the total pattern of accidental happenings—whether or not they caused injury or damage—and must plan a comprehensive system of prevention rather than rely on the ad hoc patching-up of deficiencies which injury-accidents have brought to light. Shorn of the fashionable jargon used in much of the literature, this may seem no more than common sense. Yet it remains the case in industry that preventive action typically tends to take place in piecemeal fashion and only after the event.

49. One of the most practical aspects of these techniques is that they can be used to bring out the full costs of accidental occurrences within the firm, and the pattern of those costs, thereby providing essential data for management control. In this way accident prevention ceases to be seen as some vague kind of separate activity to be evaluated, if at all, by uncertain criteria, but can be fully integrated within the overall management system. We have more to say about costs in chapter 16.

50. We are encouraged by the increasing interest shown by employers in the development of more systematic approaches to prevention. Instances were brought to our attention where the introduction of a carefully planned and monitored safety programme had been followed by a dramatic reduction in the incidence of accidents.* More needs to be done to increase industry's capacity for this kind of systematic self-regulation. This is primarily a task for industry itself, but we hope that the statutory arrangements we recommend later in this report will make a contribution. In particular, we see here some scope for sophisticated advisory work by the inspectorates.

Management objectives and the allocation of responsibilities

51. There are two essential ingredients for better management performance in this field—explicit policy objectives, and effective organisation in which individual responsibilities are clearly defined.

52. Safety and health activity at the workplace needs a central focus. Many firms have produced safety and health policy statements setting out their basic objectives. These are usually supported by descriptions of the firm's safety and health organisation, and by manuals of detailed procedure. They provide a frame of reference for positive safety and health activity within the firm, and a stimulus to interest and participation by all personnel. They are particularly valuable in the induction and training of new entrants.^t We make a recommendation about this later in the chapter.

53. The establishment of positive policy objectives must be accompanied by clear allocation of responsibilities within the management structure. It is generally accepted that the primary operational responsibility for ensuring safe working must rest with line management, and here there are two key levels that require particular attention. At the top, at board level, direct responsibility for the general oversight of safety and health matters within the firm should be

• For example, Esso Petroleum Co. Ltd. at Fawley and British Leyland Motor Corporation at Longbridge.

^t Two excellent examples we saw were those of the British Steel Corporation and Procter & Gamble Ltd.

included in the duties of one of the directors, in the same way that a director may be allocated overall responsibility for production or marketing or exports. In our investigations we formed the impression that undivided line management responsibility for safety and health matters more often than not stops at some point in the middle-management chain; further up the chain the responsibility tends to become diffused and uncertain. Safety and health should be treated like any other major management function, with a clear line of responsibility and command running up to an accountable individual at the very top. The other crucial level is the level of first-line supervision. It is the supervisor who is on the spot and in a position to know whether or not safety arrangements are working in practice. His influence can be decisive. Both here and abroad, wherever we have seen outstanding safety and health arrangements it has been clear that a key role is played by well trained supervisors who are held accountable for what happens within their sphere of control. We are not at all satisfied that this key role in safety is sufficiently recognised throughout industry generally, or that enough is done to equip supervisors for it.

Safety advisers

54. Whilst safety and health must be the direct operational responsibility of line management, we are equally clear that there is an important role for the specialist safety adviser or safety officer, standing in the same relationship to line management as do other specialists such as personnel officers. We received a lot of evidence about safety officers, much of it to the effect that their role is under-valued and that in consequence the work does not attract and retain sufficient people of the right calibre. Estimates made in recent years indicate that there are not more than about fifteen hundred full-time safety officers employed in factories, with perhaps two to three thousand more who act part-time in this capacity. Undoubtedly they vary widely in qualifications, capacity and status. Some are highly-qualified professionals in very senior posts, responsible for the development of safety policy and co-ordination at high level. At the other extreme there are safety officers who do little more than maintain basic records, issue protective clothing and conduct routine investigations into accidents.

55. The Institution of Industrial Safety Officers was formed in 1953. Its aims are to raise safety officers' standards of professional competence, to exchange information, and to develop accident prevention methods and techniques. It has a membership of over 2,000 comprising some 800 corporate and 1,200 non-corporate members. Corporate membership is now restricted to those who pass the Institution's qualifying examination, which was introduced in 1960. Since then about 800 persons have taken the examination, of whom rather less than half were successful. The standard has been steadily raised. The Institution has published a guide to the training of safety officers which includes a syllabus and training programme for those who seek to obtain corporate membership. Courses based on this are organised by RoSPA, the British Safety Council and some technical colleges.

56. Although the Institution's efforts to promote wider recognition of the profession have made some progress, it has, been to some extent hampered by controversy over whether there really is scope for a career profession of safety officer. We think that there is some substance in the argument that this

work should not be seen too exclusively in terms of a narrowly-specialised single-career profession. For our part we should like to see many more people in very senior management posts who have had the benefit of previous experience as safety officers and safety advisers. There should be room for the man who seeks a career in management and who specialises for a period in occupational safety and health as an integral part of that career. There are signs that some large firms are beginning to encourage this. We hope that the Institution will welcome 'short-teen' safety officers of this type and make any necessary provision for them such as, for example, devising special courses to link in with their management training, and providing an appropriate form of membership. At the same time, the extent of the need for specialist advice on safety and health is in our view such that there is clearly a place for the man who seeks a long-term career within industry in occupational safety and health advisory work. The development of more systematic and sophisticated approaches to safety management, on the lines we have mentioned, points to an increasingly large and high-level role for the senior safety adviser.

57. We were urged to recommend ways of raising the status of safety officers. It is sometimes suggested, for example, that all firms over a certain size should be required to appoint a safety officer, whose duties and qualifications should be prescribed in statutory regulations. There are already some very limited requirements of this kind in shipbuilding and construction, and experience here does not seem to have been particularly encouraging. In practice it is difficult to ensure that suitable people are appointed, and an obligatory appointment can sometimes lead others to act as though their own responsibilities for safety and health are thereby decreased. We think that new legislation should provide powers which would enable such requirements to be imposed in particular industries where this might be helpful, but before such powers can be exercised effectively much more thought and study will need to be given to the complex question of prescribing and enforcing standards of training and qualification.

58. The fact is, of course, that raising the status of safety officers cannot be achieved by artificial means, least of all by any measure imposed on industry from the outside. It will come about through the natural interaction of a number of factors. We have no doubt that the Institution of Industrial Safety Officers will continue its work towards progressively higher standards of training and qualification, and we would expect this work to receive recognition and support within the framework of the industry-level and national arrangements discussed in chapters 3 and 4. In the last resort, however, everything depends upon how far employers recognise the importance of the subject of safety and health and perceive the need for specialised assistance within the management team. We hope that our report will make a contribution towards this.

The involvement of workpeople

59. We have stressed that the promotion of safety and health at work is first and foremost a matter of efficient management. But it is not a management prerogative. In this context more than most, real progress is impossible without the full co-operation and commitment of all employees. How can this be

encouraged? We believe that if workpeople are to accept their full share of responsibility (again, we are not speaking of legal responsibilities) they must be able to participate fully in the making and monitoring of arrangements for safety and health at their place of work. Moreover, if the new inspection approaches which we discuss in subsequent chapters are to work, increasing reliance will have to be placed on the contribution that workpeople themselves can make towards safety monitoring.

60. We have heard a great deal of evidence on this sometimes controversial topic. In visiting firms at home and overseas we made a particular point of studying and discussing the arrangements for the participation of employees in safety and health matters. A number of approaches exist. Since 1872 coalminers have had a statutory right to appoint representatives to inspect mines on their behalf, and the Mines and Quarries Act 1954 extended this right to all employees in mines and quarries. Representatives are appointed through the trade unions, and they have the right to carry out an inspection at least once a month and to investigate accidents and dangerous occurrences. In 1970 workmen's representatives made over 5,500 inspections of coalmines and over 300 inspections of quarries. We found evidence of very close co-operation between mine managers, the Mines Inspectorate, and the workmen's inspectors. These arrangements, as well as the extensive arrangements for joint safety committees at mine, area and national level, are obviously highly valued within the industry. Somewhat similar provision for the appointment of workers' safety representatives (as well as joint safety committees) is contained in Swedish legislation and, again, the arrangements appear to be valued for their practical contribution to co-operation on safety matters at shop-floor level.

61. In manufacturing industry in this country, the typical method of involving workpeople is through the voluntary establishment of joint safety committees in which representatives of management and employees meet periodically to discuss safety and health problems and measures. Patterns of organisation and procedure vary widely, as do views about the effectiveness of these committees. During the 1960's there was a considerable increase in their number. Following political initiatives and discussion of the possibility of legislation on this subject, the number of factories with joint safety committees rose from 5,826 to 9,487 between 1966 and 1969, at which point it was estimated that joint safety committee; covered nearly 70%, =0 of the workforce in factories employing more than 50 people.

62. The appointment of safety representatives and joint safety committees are not the only methods of seeking to increase the involvement and commitment of workpeople. Some firms have arrangements whereby all employees in a particular working unit meet periodically for discussions about safety. This approach, sometimes referred to as 'total involvement', lays stress on participation by every individual employee. Other ways in which employees can take a direct part in the actual work of safety assessment and accident prevention are by participation in exercises such as safety sampling and hazard spotting.

Can legislation **help**?

63. There has been some debate as to whether—and if so, in what ways— legislation can be used to ensure a greater degree of active participation by

workpeople in the promotion of safety and health at work. We have already mentioned the operation of statutory provisions on this subject in the coal-mining industry. In 1970 the Government of the day introduced the Employed Persons (Health and Safety) Bill, one part of which provided that at any factory employing 10 or more workers, safety representatives could be appointed by the recognised trade unions. At any factory employing more than 100 workers, the employer would be obliged to form a joint safety committee if so requested by the appointed safety representatives. The Bill prescribed the qualifications of safety representatives, their functions and rights, and the facilities which employers were to be required to provide. Details of the composition and procedures of joint safety committees were to be matters for negotiation between those concerned. An important proviso was that nothing in the Bill was to be taken to preclude the making of agreements for other methods of joint consultation and co-operation on safety. This was to avoid interference with satisfactory voluntary arrangements which were known to exist. The Bill was not opposed, but was lost on the dissolution of Parliament in May 1970. A private member's Bill on similar lines which was introduced in February 1971 made no progress, but another private member's Bill, also on similar lines—the Employed Persons (Safety) Bill—was given a second reading on 4th February 1972.

64. At the time of writing we do not know when the remaining Parliamentary stages of the Employed Persons (Safety) Bill will be completed, nor how far it might be amended before it reaches the statute book. We do not, therefore, feel that we are precluded from making recommendations on this subject. We have given it a lot of thought. We regard the question of worker-involvement as quite central to this Inquiry and to the main themes of our Report. The submissions made to us revealed that whilst there is general agreement on the value of joint consultation on safety, there are some doubts about extensive legal intervention in this field. The TUC argued in evidence that there should be a legal obligation on employers to meet trade union requests for the appointment of workers' safety representatives and joint safety committees. This view had widespread support from many bodies and organisations which made submissions to us. The CBI, on the other hand, maintained that the success of joint consultative machinery in any form depends upon the positive desire of both sides to work together, and that this cannot be compelled by law. They advocated the continued voluntary development of joint safety committees, and this view also had its supporters.

65. We have been interested to note that most of the discussion on this topic has tended to centre on arguments for or against compulsory joint safety committees. The proposal in the original government Bill was for the appointment of employees' safety representatives who could then, if they wished, require the establishment of joint safety committees. Although the two elements of the proposal are closely related, they can be considered separately. We are in no doubt that the concept of employees' safety representatives is more important than the concept of joint safety committees. Whilst there may be some substance in the argument that joint safety committees can only be effective if the desire to have them and make them work exists on both sides, we are not convinced that this argument has precisely the same application to

employees' safety representatives. The question is much less one of philosophy than of what would actually happen in practice. It is not just a matter of sitting on a joint safety committee. As we see it, an employees' safety representative—whether appointed under statutory provision or by voluntary agreement—should have specific duties in addition to his general function of stimulating more interest in accident prevention amongst his colleagues. He should be empowered to carry out inspections, and we do not believe that any responsible employer would ignore a genuine problem revealed by such inspections. He should have access to and contacts with government and local authority safety inspectors—a very important point which we discuss further in paragraph 213. We believe that all of this would be valuable even in the face of any initial doubts on the part of management.

66. In our view, it is as much or even more important for employees to have representatives to act as a channel of communication with management on safety and health matters as for any other subject of joint consultation. The need for good communications on safety is stressed in the Industrial Relations Code of Practice, approved by Parliament, paragraph 47 of which says: 'The Factories Act and other legislation lay down minimum standards about working conditions. Management should aim at improving on these standards in consultation and co-operation with employees and their representatives.' Indeed, there is a greater natural identity of interest between 'the two sides' in relation to safety and health problems than in most other matters. There is no legitimate scope for 'bargaining' on safety and health issues, but much scope for constructive discussion, joint inspection, and participation in working out solutions. To this the employees' safety representative can contribute expertise of a special kind—the intimate knowledge of working habits and attitudes on the shop floor. We are anxious too, that better co-operative effort between employers and workpeople should develop alongside the new inspection approaches that we discuss in chapters 7 and 9. In this context we attach great importance to contacts between inspectors and people on the shop floor. Workers' safety representatives and joint safety committees can be valuable channels of communication between industry and the inspection services. More generally, we have stressed the concept of self-regulation and self-inspection as a basic theme of this Report. In this we do not distinguish between the 'two sides' of industry; if progress is to be made there must be adequate arrangements for both management and workpeople to play their full part.

67. We now summarise our conclusions on the subject of worker-involvement and joint consultation, and make our recommendation.

A statutory requirement to consult

68. It is generally accepted that there is no credible way of measuring the value of consultative and participatory arrangements in terms of their direct effect upon day-to-day safety performance. Nevertheless, most of the employers, inspectors, trade unionists and others with whom we discussed the subject are in no doubt about the importance of bringing workpeople more directly into the actual work of self-inspection and self-regulation by the individual firm. There is no real dispute about these aims. We are left with the question—can legislation help, and if so how?

69. We believe that the best answer would be a statutory requirement dealing in general terms with arrangements for participation by employees. Our view is that the involvement of employees in safety and health measures is too important for new occupational safety legislation to remain entirely silent on the matter. As we have noted, many voluntary arrangements already exist at plant level for joint co-operation on safety and health between employers and employees and their representatives. We would hope to see such arrangements voluntarily extended in many more cases to include provision for the appointment of workers' safety representatives, as well as for joint safety committees and other forms of joint endeavour. We cannot see that a measure of statutory backing would impede these developments, but it could help spread them. To spread good practice is one of the functions of social legislation. On the other hand, we are impressed by the argument that the very wide variety of circumstances in industry and commerce demand a flexible approach, rather than the imposition of some uniform pattern of arrangements. We are inclined to think that a statutory provision requiring the appointment of safety representatives and safety committees might be rather too rigid and, more importantly, rather too narrow in concept. Our conclusion is that the best way to meet the real need would be to impose on employers a general duty to consult, on somewhat similar lines to the consultative provisions in existing legislation prescribing the functions and duties of the nationalised corporations.*

70. We recommend, therefore, that there should be a statutory duty on every employer to consult with his employees or their representatives at the workplace on measures for promoting safety and health at work, and to provide arrangements for the participation of employees in the development of such measures. The form and manner of such consultation and participation would not be specified in detail, so as to provide the flexibility needed to suit a wide variety of particular circumstances and to avoid prejudicing satisfactory existing arrangements. Guidance should, however, be given in a code of practice outlining model arrangements, including advice on joint safety committees and the appointment of employees' safety representatives. We envisage that these appointments would be through election by employees, arranged through the trade unions recognised at the workplace or through works groups as appropriate. The code should deal with such matters as the qualifications, training, duties and rights of employees' safety representatives, arrangements for joint inspections, the objectives, composition and procedures of joint safety committees, and so on. It should provide some guidance for industries where special arrangements might be necessary, and should also describe other means of joint participation in the promotion of safety and health at work. Above all, the code should stress that simply talking together about safety and health is not enough. It is essential to ensure the active follow-through of the measures discussed.

* The earliest example is contained in the Coal Industry Nationalisation Act 1946, under which the National Coal Board has a statutory obligation 'to enter into consultation with organisations appearing to them to represent substantial proportions of the persons in the employment of the Board . . . as to the Board's concluding with those organisations agreements providing for the establishment and maintenance of joint machinery for . . . consultation on questions relating to the safety, health or welfare of such persons . . .' Somewhat similar provisions are to be found in the Electricity Act 1947, the Gas Act 1948 and the Iron and Steel Acts 1949 and 1967.

71. A general obligation of this nature would, we believe, have very considerable persuasive force in those areas of industry and commerce where joint arrangements are not already well developed. At the same time it would not inhibit the development of various forms of joint endeavour going beyond what is usually comprised in the expression 'joint consultation'. It is not the sort of duty that would be capable of enforcement in any strict sense, since absence of adequate consultation and participatory arrangements would be a difficult matter to prove. Nevertheless, wherever there was dissatisfaction, the existence of a basic legal obligation would be a valuable lever for employees and their representatives, and also for inspectors, in their approaches to employers. In the last resort there could be no objection in principle to the use by inspectors of the Improvement Notice procedure which we discuss in chapter 9.

Written safety and health policies

72. We have looked for other specific ways in which new kinds of legal obligation might make a constructive contribution towards promoting and sustaining active interest in safety and health at the workplace. The best managements are in no need of persuasion or pressure. The problem is how to raise the general level of interest to the standards of the best firms. We see a need not for dramatic legal intervention but for small pressures in the right direction, to reinforce the natural development of good practice. There are two particular elements of good practice that we think can usefully be promoted in this way.

73. The first is the written company policy for safety and health, which we referred to in paragraph 52. We have no doubt that the existence of a clear and explicit statement of a firm's policy and arrangements for safety and health can be of genuine practical value.* Here, all that we have said about employee participation and involvement is, of course, very relevant. If all employees are to participate, they must know what the basic policy is and what arrangements exist for implementing it; and employers should be clear enough about their policy objectives to be able to set them down in writing. For those employers who have not already done so; the process of drawing up such a statement might be a salutary exercise.

74. We recommend, therefore, that it should be a legal obligation on all employers employing more than a specified number of workpeople (say, those employing 10 or more) to set out their safety and health policy and rules in writing and to make such statements available to all employees. The statements should also be available for examination, if required, by visiting inspectors. In addition to setting out main policy objectives, the statements should include information on the firm's safety and health organisation, on the duties of its safety officers, on arrangements for joint consultation about safety and health measures, and on matters such as safety training, protective clothing and so on. t

* In a joint statement on safety consultation issued in February 1972, the CBI and TUC recorded their view that 'a clear written statement of a company's safety policy is the essential foundation-stone for any effective safety organisation'.

t Paragraph 62 of the Industrial Relations Code of Practice recommends, inter alia, that employees should be given comprehensive information in writing about safety and health rules.

Safety and health at the workplace

We do not think that it would be practicable or desirable to attempt to prescribe the form and contents of such statements in detail, since they would vary according to the size and type of firm, the nature of the particular safety and health hazards of the firm's activities and so on. It might be helpful, however, to publish typical models for guidance in a code of practice.

Company reports

75. Our second suggestion relates to what we said earlier about the importance of effective interest at board level. We can think of few things more likely to engage the attention of the chairman and directors of a board than an obligation to furnish regular accounts about how the firm has catered for the safety and health of its employees, and with what results. Some companies already do this. We have seen interesting examples in some of the annual reports that directors of registered companies are obliged by law to present to shareholders and lodge with the Registrar of Companies (where they are available to press and public), as well as in the annual reports which boards of nationalised corporations are required to submit to Parliament. It should be noted that under the Companies Act 1967, directors' reports are already required to include a variety of types of information, such as particulars of numbers employed, amounts paid in salaries and wages, information about contributions for political and charitable purposes and, in some cases, information about exports.

76. It seems to us that this could be one useful way of drawing more attention to the subject of safety and health at work. We recommend therefore, that the directors' reports lodged with the Registrar of Companies should be required to include prescribed information, including statistics, about reportable accidents and industrial diseases suffered by the company's employees and about measures taken by the company in this regard. It might be argued against this that a recital of bare statistics can be misleading. This is true, but we cannot imagine that a company would quote such statistics without comment or explanation. It is precisely the preparation of such comments and explanations that would ensure attention to the subject at the highest level within the firm. It will also be argued that this requirement cannot be made to apply to businesses which are not registered companies. Again this is true, but we do not see this as a good reason for not utilising a ready means of ensuring greater publicity for safety and health over a very large part of industry and commerce. Indeed, we think that many companies would be well content to see such a requirement introduced as a general obligation. Many would take it as a good opportunity to draw attention to the efforts they put into this aspect of their work.

CHAPTER 3

ACTION AT INDUSTRY LEVEL

77. We have discussed in chapter 2 what needs to be done at the level of the individual company and plant, and we have laid particular stress on the importance of voluntary and co-operative effort. A very great contribution to the development of this industrial self-regulation can be made by industry-based organisations. Each individual industry—whether it be cotton, mining, chemicals, farming, atomic energy or whatever—has its own particular interests and problems. People within each industry look for a tailor-made approach to safety and health related to the industry's own circumstances. Progressive employers recognise that firms within an industry should work towards higher standards collectively, so that progress is not impeded by fear of unfair competitive advantage. There is virtually unlimited scope for practical work by industry-based safety bodies, which can collate and interpret statistics, publish information, undertake technical surveys and research, provide advisory services to individual firms, and liaise with government departments and inspectorates. Through these means each industry can work towards the solution of its own special problems.

78. The most impressive industry-level safety operation we came across during the Inquiry was the work of Bygghalsan in Sweden. Bygghalsan is the Foundation for Industrial Safety and Health in the Construction Industry. It was formed in 1968 to promote safer working practices and conditions in the industry and to provide information, training, preventive health care, treatment and rehabilitation. It is financed by a levy on employers and has 17 regional offices, each with a technical and a medical section, as well as mobile units. Through the provision of a wide range of technical services it is undoubtedly making a positive impact on attitudes towards safety and health in the Swedish construction industry. The comprehensive nature of Bygghalsan's approach illustrates what can be done at industry level.

79. In Great Britain, industry-level safety activity takes a variety of forms. Some industries have joint standing committees on safety, appointed under statutory provisions. Others have joint safety committees as offshoots of joint industrial councils. Many employers' associations have set up safety committees or accident prevention committees, and industrial research associations have also been active in this field. We now look briefly at these various types of activity.

Joint standing committees

80. Joint standing committees for safety and health may be appointed under section 177 of the Factories Act 1961, which makes provision for the Secretary of State for Employment to promote health and safety by collecting and disseminating information and by investigating problems, and enables him to appoint persons to advise him. The initiative in setting up joint standing committees is taken by the Department of Employment rather than by the industries

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themselves. There are eight such committees; three for the cotton industry and one each for the wool textile industry, the pottery industry, paper mills, foundries and power presses. Each committee is chaired by a senior member of the Factory Inspectorate and includes representatives of both sides of industry as well as other experts. In addition to keeping their respective fields under continuous review they undertake studies of specific problems. Reports of these studies are published and in effect provide a series of extremely useful codes of practice. A good recent example is the report *Guarding of Foundry Machinery* published in 1971 by the Foundries JSC. Another example is the well-produced report *Pattern for Progress*, published in 1971 by the JSC for the pottery industry. In the cotton industry there is a long history of joint consultation on safety and health, extending over some 60 years, and the reports made by the three joint standing committees on general and particular subjects have had great influence. The joint standing committee on safety in the use of power presses is rather different in that it is concerned with a particular process rather than with a particular industry. The present Power Presses Regulations were based on recommendations made by this committee. The committee has published eight reports, the two most recent being *Safety in the Use of Press Brakes*, and *Electro-Sensitive Safety Devices for Friction-Clutch Press Brakes*. These are well designed and illustrated codes of practice.

Other industry-level safety committees

81. The majority of industry-based safety committees are set up and organised by and at the initiative of the industries themselves, without external prompting. Some are composed of management personnel only, in others there is trade union participation. A great deal of undramatic but valuable work is done by these bodies. Limitations of space preclude the mention of more than a few examples.

82. One example is the Joint Safety and Health Committee of the Soap, Candle and Edible Fat Trades Joint Industrial Council. The joint committee encourages member-firms to have regular discussions on safety with their employees and to set up joint safety committees at company and plant level. An annual accident report is prepared by the joint committee for examination and discussion by the Joint Industrial Council, and safety features each year on the agenda of the JIC's annual meeting. Technical and general advice is available from experts in large member-companies, and members are encouraged to make use of the services of RoSPA. The committee maintains close contacts with the Training Boards concerned with the industry.

83. Another interesting example is provided by the arrangements in the shipbuilding and repairing industry. In 1967 the Shipbuilding and Ship-Repairing Council appointed a working party consisting of representatives of employers, trade unions and the Factory Inspectorate to examine ways in which suggestions in the Geddes Report* relating to standards of safety and health could be implemented, and to make recommendations on permanent national machinery to develop and implement safety and health standards. Following the working party's report a National Safety Committee consisting

* *Report of the Shipbuilding Inquiry Committee 1965-66*. Cmnd 2937, HMSO 1966.

of six employer and six trade union representatives was established. Meetings are held quarterly. Activities have included a national safety campaign in which safety booklets were circulated to every employee in the industry, followed up by a poster campaign. Accident statistics are collected from members of the Shipbuilders and Repairers National Association and kept under review, not only by the National Safety Committee but also by the Association's Industrial Relations Committee. Although working practices in the industry are covered by the Shipbuilding and Ship-Repairing Regulations 1960, which constitute a comprehensive code of statutory safety provisions, the National Safety Committee has undertaken the task of preparing a supplementary code of good practice. There is close liaison with the Factory Inspectorate, including joint conferences held on a regional basis, and also with the Shipbuilding Industry Training Board. Member firms are kept informed of relevant literature published by the Department of Employment, technical societies and manufacturers.

84. The large nationalised corporations, which constitute the greater parts of their respective industries, have made extensive arrangements for safety activity on an industry-wide basis. For example, the Coal Industry National Consultative Council, which includes representatives of the NCB, the unions and the Institution of Mining Engineers, has a Safety and Health Committee with representation from all sides of the industry. The Department of Trade and Industry sends two assessors to its meetings, one of whom is the Chief Inspector of Mines and Quarries. The NCB also has a National Safety Committee which is primarily concerned with special publicity and propaganda campaigns.

85. In the chemical industry, safety is promoted by the British Chemical Industry Safety Council. This was formed by the Chemical Industries Association in 1956 and is composed of production and other directors from member-firms. The work of the Safety Council and its committees is co-ordinated and administered by a full-time secretary with executive powers. Activities include the collation of accident statistics, surveys of special problems, and an advisory and information service. A quarterly *Safety Summary* is available to member and non-member firms and subscribers. Safety training is organised both by arranging off-the-job courses and by providing lecturers to visit individual firms. There is consultation with the trade unions at national level through the Safety, Health and Welfare Committee of the joint industrial councils for the chemical and allied industries. A report *Safe and Sound*, which was published by the BCISC in 1969, presented the findings of a team which visited chemical firms in North America. This report attracted widespread interest within the industry and more generally.*

86. Arrangements of this kind are by no means confined to the largest industries. For example, in 1968 the Society of British Printing Ink Manufacturers and the Society of Graphical and Allied Trades set up the Printing Ink Industry Joint Health and Safety Committee, which meets quarterly. The industry is quite small, employing some 4,000 people in all.

* *Safe and Sound*. Report of a working party on United States safety practices. British Chemical Industries Safety Council of the Chemical Industries Association 1969.

Trade unions, the TUC and the CBI

87. We believe that there is very great scope for practical safety activity organised on an industry-by-industry basis by trade unions and employers' associations. On our visits overseas we were impressed by the extent of the activities—such as the provision of training courses and the preparation of publications on safety—which were undertaken directly by trade unions, many of which have fully fledged safety departments. In contrast, whilst the trade unions in this country undertake various activities in the interests of the safety and health of their members we are aware of only three—the National Union of Mineworkers, the Amalgamated Union of Engineering Workers and the EETU/PTU—which have set up safety departments as distinct from departments providing legal services for members injured at work.

88. The TUC includes industrial safety and health in the functions of its Social Insurance and Industrial Welfare Department, and on the health and hygiene side a valuable service is provided through the TUC Centenary Institute of Occupational Health in the London School of Hygiene and Tropical Medicine. We think that occupational safety and health is an area where the TUC is in a position to give a very strong lead to individual unions, encouraging and helping them to set up arrangements for making a positive contribution to the promotion of safety and health at work. The CBI, through its Safety, Health and Welfare Department seeks to co-ordinate the activities of the employers' associations and to encourage the development of voluntary activity by conferences, meetings and regular dissemination of information through the monthly *Industrial Relations Bulletin* and the quarterly *Note of Recent Developments*. It foresees an expanding role for voluntary safety activity at industry level, and considers that its own functions should be to formulate the employers' views on policy; to foster the setting up and development of voluntary arrangements at industry level and, through the industry organisations, at company level; to stimulate, in collaboration with the TUC, voluntary joint advisory machinery; to provide means for the exchange of ideas between organisations at industry level; and to help smaller employers' organisations with arrangements for the provision of technical advice at company level.

89. We have no doubt that a very great deal could be done to develop further collaboration between the CBI and the TUC in promoting safety and health activity at industry level, and we believe that both could profitably devote additional resources to this cause. We were particularly encouraged to hear towards the end of 1971 that the two bodies had started talks to examine the need for new initiatives on safety and health. We hope that they will continue this dialogue and will look for imaginative measures to open up a new chapter in co-operation in this field.

Other organisations

90. Trade associations, research associations and various professional and scientific institutions also make important and valuable contributions to safety and health, particularly at industry level. The Institute of Petroleum, for example, has produced codes of safe practice covering many aspects of the

petroleum industry's activities. The Royal Institute of Chemistry has for many years been concerned with safety in laboratories and chemical plant, and publishes handbooks on a number of subjects including toxicity and safety in dealing with chemical substances. Industrial research associations such as the Asbestosis Research Council, the British Iron and Steel Research Association, and the Rubber and Plastics Research Association of Great Britain have been active in safety and health research. Bodies such as the Institution of Nuclear Engineers, the British Nuclear Energy Society, the Institution of Mining Engineers and the Institute of Quarrying make important contributions in their specialised spheres.

91. In addition to the work of industry-based organisations and associations, an extremely useful function is performed by the multi-industry Accident Prevention Groups which have sprung up on a geographical basis. Many are affiliated to RoSPA, and some to the British Safety Council. Membership includes safety officers, other management personnel, and sometimes trade union representatives. They hold regular meetings, conferences, special safety surveys and campaigns. Groups combine in various ways. For example, the Scottish Industrial Safety Groups Advisory Council holds annual conferences. In 1959 the Liverpool section of the National Federation of Building Trades Employers and the Merseyside Accident Prevention Group set up the Merseyside and North-West Safety Centre.

Recent developments

92. The period of this Inquiry has coincided with signs of renewed interest in the type of activity we have been discussing. In 1971 the National Federation of Building Trades Employers completed the production of a comprehensive and well-illustrated manual *Construction Safety*, which has attracted considerable attention both at home and overseas. It provides employers, site management, safety officers and training establishments with a standard work of reference explaining relevant statutory requirements in readable terms, and describing safe working methods and good practice in the construction industry. It is designed in loose-leaf form so that it can be kept up to date through a subscription service covering changes in regulations, improved methods and new techniques. The manual is part of a wider programme. The Federation, in co-operation with the Federation of Civil Engineering Contractors and the Construction Industry Training Board has assisted with the establishment of safety training centres for the construction industry and in the provision of mobile training units which visit construction sites.

93. To take another example, in October 1971 the Engineering Employers' Federation launched an extensively publicised campaign aimed at reducing accidents in the engineering industry by 25% in two years. The campaign is built around a six-part action plan for management. In the first part member-firms were asked to review their safety performance and to complete a questionnaire dealing with injuries, time lost, costs and other relevant matters. Other parts outline management procedures that can be applied to the prevention of accidents. These recent initiatives in two of our largest industries show what can be done, and are encouraging portents. We hope that these examples will be widely emulated by other industries.

Action at industry level

The future

94. It will be clear from this discussion that we regard practical safety work undertaken on a voluntary basis at industry level as one of the most fruitful avenues for development in the future. The indications are that such activity will continue to increase spontaneously. We feel very strongly that this should include more emphasis in future on joint action at industry level, as distinct from separate action by employer organisations or by trade unions, although both are valuable. We have expressed the view that progress in this could be assisted by continued active steps by the TUC and CBI, and we urge these bodies to devote more resources to this purpose.

95. It is important that these self-generated and self-generating activities should not be inhibited by unnecessary state intervention. At the same time it is clear that there is real scope for fruitful operational collaboration between organisations engaged in this work within industry and the central authorities concerned with occupational safety and health. Various links already exist. For example we have already mentioned section 177 of the Factories Act 1961 which provides for the statutory appointment of joint standing committees on safety at industry level. We would expect a similar power to be available in any new legislation. More generally, members of the inspectorates maintain many formal and informal contacts with the various safety organisations within industry. The fact remains, however, that neither the nature of the present legislation nor the present fragmentation of administrative jurisdictions is especially conducive to the active development of this collaboration.

96. To sum up, we repeat what we said at the outset of this chapter—that a very great contribution to the development of industrial self-regulation for safety and health can be made by industry-based organisations. We attach considerable importance to the idea that our proposals in the next two chapters should have the effect of strengthening and encouraging this spontaneous industry-by-industry activity. In chapter 4 we turn to our proposal for the unification of administrative arrangements under a new national Authority for Safety and Health at Work. An important aspect of this proposal is that it would provide a better mechanism for linking up voluntary and statutory activities in a more comprehensive way. At national level, the participation of industrialists and trade unionists in the running of the new Authority should facilitate co-operation at all levels between the Authority and the various industry-based safety organisations. Within the new legislative framework that we propose in chapter 5 there would be very great scope for collaboration at operational level in the detailed technical work on regulations, standards and codes of practice. These points are developed in more detail in chapters 4 and 5.

CHAPTER 4

A NEW STATUTORY FRAMEWORK

The case for unification

97. In chapter 1 we described the excessive fragmentation of the statutory arrangements and discussed how this causes problems at the level of the workplace, at the level of the operational activities of the inspectorates, and at the national level of administration, policy-making and law-making. To recapitulate briefly, these problems and weaknesses can be summed up as follows:—

- (a) There are nine separate groups of „atutes dealing with safety and health at work. They are separately administered by five central government departments with seven separate central inspectorates (see paragraph 32). This situation, which is partly the result of historical accident, makes it virtually impossible to develop and maintain a comprehensive, up to date and readily intelligible statutory code of occupational safety and health. Many of the statutory provisions are in need of revision, but in this situation sensible revision over a broad front is an extremely difficult task (see paragraph 39). Hence the persistence of many deficiencies and weaknesses.
- (b) Fragmentation of the legislation and its administration has the effect of dispersing and compartmentalising the facilities and technical expertise available at national level for helping industry to deal with occupational hazards (see paragraph 38). Although occupational safety and health problems vary in detail from industry to industry, many of the problems have common technical characteristics and require the application of similar kinds of professional knowledge and expertise. For example, dust hazards arise in a large number of industries including coalmining, cotton, asbestos and atomic energy. The problems of explosive and toxic substances are spread over a wide field as, of course, are the 'common accidents' arising from falling, the handling of materials, etc. The range of highly-qualified advisory expertise needed would be more efficiently organised and deployed from a common pool.
- (c) As a result of their piecemeal development, there are anomalous gaps in the coverage of the present statutory provisions. Some five million workpeople are left entirely out of scope. On the other hand, some of the statutory provisions and enforcement arrangements overlap in ways that can create confusion and uncertainty. Anomalies and demarcation problems arise because of the existence of so many legislative and administrative boundary lines (paragraphs 35-37). Between the various sectors there are differences in policies, approach and detail, whereas equity would seem to demand that the protection provided by the state for various classes of workpeople should be based on one common and consistently applied policy, with the available technical resources deployed according to some uniform measure of priority.

98. *In sum, the excessive fragmentation of the legislation and of its administration is a serious obstacle to the creation of a more modern code of law, to its effective implementation, and to the development of a clear and comprehensive strategy for the promotion of safety and health at work.* It is apparent that tinkering with the present statutory provisions and administrative arrangements will not cure the situation. A major exercise in unification is needed to rationalise the state's contribution to safety and health at work and to maximise its efficiency.

99. We therefore recommend that the statutory arrangements should be unified, and we spell out below what we have in mind. The subject is discussed under three broad headings:—

- (a) The field for unified legislation and administration (paragraphs 100-109).
- (b) The nature of the institution needed for the overall management of a unified system (paragraphs 110-124).
- (c) The internal organisation of the new institution and its inspection services, which we discuss in chapter 7 in the context of our discussion of the inspectorates.

The field for unified legislation and administration

100. The relevant statutes should be brought under single administration and, so far as possible, revised and replaced by provisions under the single comprehensive enactment which we discuss in chapter 5. We now indicate which of the present statutes and enforcing arrangements should be brought within this unified system. We divide them into four broad categories.

101. *In the first category* are the main statutes designed to deal with the safety and health of very large sections of the working population. These are the Factories Act 1961, the Offices, Shops and Railway Premises Act 1963, the Mines and Quarries Act 1954, the Agriculture (Poisonous Substances) Act 1952 and the Agriculture (Safety, Health and Welfare Provisions) Act 1956. It was suggested to us that safety legislation and administration dealing with mines and quarries, and with agriculture, should remain separate because these industries present certain highly specialised characteristics. It was argued that the mining environment is unique, that the hazards are exceptional, and that in most countries mining safety provisions are separately administered. In the case of farming it was said that farming operations are exposed to natural elements which cannot be controlled, are highly dispersed in very small units, and are characterised by independent working with minimal supervision. Consequently there was a need for special provisions and for specialist inspection personnel with an intimate knowledge of the industry. We have considered these points carefully. It is, of course, indisputable that many industries have unique features. However, the Factories Act already provides an example of an umbrella statute beneath which special sets of provisions are administered for such diverse and hazardous industries as chemicals, construction, shipbuilding, and docks. Under the comprehensive Act which we discuss in chapters 5 and 6 we see no difficulty in making special provisions and special enforcement and advisory arrangements for particular industries, including mining and agriculture.

102. It is also sometimes argued in the case of mining and agriculture that a subject such as safety and health is best dealt with within the context of other government policies administered by the departments responsible for general government relations with the industries concerned. We see little of real substance in this argument. In the first place, it is not generally applied. If it were, the Factory Inspectorate might appropriately be divided amongst the various divisions of the Department of Trade and Industry and the Department of the Environment, which are 'sponsoring' departments for most of the industries covered by the Factories Act. In the second place we saw little evidence that the activities of the full-time safety inspectors for mining and for agriculture are closely meshed in with the general work of their parent departments. On the contrary, some degree of isolation was quite evident.

103. *In the second category* are a number of major statutes which deal with certain specific hazards in the interests of safeguarding generally, rather than exclusively in the interests of the safety and health of employees. The Explosives Acts 1875 and 1923 and the Petroleum (Consolidation) Act 1928, are administered by the Home Office. The anomalies and inadequacies of the present provisions for special control over intrinsically explosive and flammable substances (see chapter 11) cannot be satisfactorily remedied without some major modification of existing administrative responsibilities. We recommend that the substance of these Acts, and the activities of the Explosives Inspectorate, should be brought within the unified system that we propose.

104. The Nuclear Installations Acts 1965 and 1969 are administered by the Department of Trade and Industry. Radiological protection in manufacturing industry is dealt with mainly by regulations under the Factories Act, and similar provisions will be needed in the new legislation that we propose. We recommend, therefore, that the present degree of fragmentation in administrative responsibility for protection against the hazards of radiation should be reduced by bringing the Nuclear Installations Acts and the work of the Nuclear Installations Inspectorate within the unified system.

105. We found some difficulty in forming a clear view about the *third of our categories*, which includes the Radioactive Substances Act 1960 and the Alkali etc. Works Regulation Act 1906 and their subordinate instruments, both administered (in England and Wales) by the Department of the Environment. The argument against bringing these Acts and their administration within scope of our proposals is that they are concerned not with the safety and health of workpeople but with the need to control certain emissions from workplaces in the interests of public health and amenity. As such they form part of a separate pattern of provisions for public health and control of environmental pollution which lie within the responsibility of the Department of the Environment and the local health authorities. On the other hand both of these Acts deal with establishments and processes which are also subject to occupational safety and health provisions, and to supervision by central safety and health inspectorates. The personnel of the Alkali and Clean Air Inspectorate and of the Radiochemical Inspectorate have much in common with specialised branches of the other central inspectorates. As specialist branches within a unified inspectorate they would have much to gain and contribute.

106. As we indicated in our preface, the treatment of this category raises issues going beyond our terms of reference. It is obvious that many health problems of the working environment and of the public environment emanate from the same sources within workplaces. Clearly, it is important to integrate the approaches to control of the working environment and control of the general environment. This is a matter for long-term study, and so far as the present Inquiry is concerned we were precluded by our terms of reference from looking into the subject of general environmental pollution, which is within the purview of other bodies such as the standing Royal Commission on Environmental Pollution. At the same time, however, we were required to review the arrangements for safeguarding the public from industrial hazards, and we recommend in the chapter on public safety (chapter 10) that some reorientation of occupational safety and health legislation and enforcement is needed to ensure that closely related questions concerning the protection of members of the public are taken fully into account in the statutory arrangements for the safety and health of workpeople. The question is where to draw a sensible operational line between the administrative arrangements concerned with controls over the workplace environment and those concerned with the general environment.

107. We believe that where the internal and external problems arise simultaneously from the same technical source, it is not sensible to divide the control arrangements. Both the Factory Inspectorate and the Alkali and Clean Air Inspectorate are concerned with atmospheric contaminants arising from sources which both must inspect. For example, in February 1972 an Inquiry—linked to this Committee—was set up to look at the situation at a lead smelting plant at Avonmouth.* This followed public disquiet about reports of lead poisoning amongst employees at the factory and also about the possibility of lead contamination outside the factory, a situation that illustrates the close relationship between the concerns of the Factory Inspectorate and those of the Alkali and Clean Air Inspectorate. In our view, the Alkali etc. Works Regulation Act and the Alkali and Clean Air Inspectorate should be brought within our proposed unified arrangements for safety and health at work.

108. We think that this type of problem can be distinguished from more discontinuous matters such as arrangements for the safe disposal of liquid and solid industrial wastes, where the problems arising are of a different character. The subject of toxic waste disposal was dealt with extensively in an official report in 1970,^t and more recently in the second report of the Royal Commission on Environmental Pollution. ^t New legislation—the Deposit of Poisonous Waste Act 1972—was passed in March 1972. It seems clear that this type of problem, where the knowledge and interests of local authorities, river authorities and water boards are decisive factors, must remain the responsibility

^{*} Three members of the Committee on Safety and Health at Work were appointed (one as Chairman) to membership of the Committee of Inquiry which was set up by the Secretary of State for Employment in February 1972 with the following terms of reference: 'To enquire into the circumstances which gave rise to the cases of lead poisoning at the RTZ smelter at Avonmouth, and to report in the light of the consideration at present being given by the Committee on Safety and Health under the chairmanship of Lord Robens to the general problems of health at work'.

^t *Report of the Technical Committee on the Disposal of Solid Toxic Wastes*. HMSO 1970.

^t *Three Issues in Industrial Pollution*. Cmnd 4894, HMSO March 1972.

of local authorities and the Department of the Environment. We would regard the disposal of radioactive wastes as falling within this general category, and therefore we do not recommend the inclusion of the Radioactive Substances Act 1960 and the Radiochemical Inspectors of the Department of the Environment within the unified arrangements for safety and health at work. Clearly however, -there will be a need for close working liaison between officials concerned with safety and health at work and those concerned with the disposal of toxic industrial wastes.

109. Our fourth and final category consists of a number of statutes of much narrower scope that we have not been able to consider in detail. *Prima facie*, however, all of them deal with matters which seem to fall naturally within the ambit of the unified system that we propose. We think that the following should be brought within the unified system—perhaps as a second stage after the main arrangements have been tackled—unless very sound reasons can be adduced for leaving them outside:—

- Anthrax Prevention Act 1919 (Department of Employment).
- Boiler Explosions Acts 1882 and 1890 (DTI).
- Celluloid and Cinematograph Film Act 1922 (Home Office).
- Hydrogen Cyanide (Fumigation) Act 1937 (Home Office).
- Mineral Workings (Offshore Installations) Act 1971 (DTI).
- Mines and Quarries (Tips) Act 1969 (DTI).
- Pipe-lines Act 1962 (DTI)
- Radioactive Substances Act 1948 (various departments).

Unified administration—the nature of a new institution

110. We have recommended that administration of the major relevant statutes should be brought under single management, and that so far as possible the various Acts and regulations should be revised and replaced by a co-ordinated set of provisions under one comprehensive enactment. We now turn to consider what kind of institutional arrangements are needed. We believe that there should be a new administering institution, and that its form and nature should be determined by four major requirements.

111. First, it should be a separate and self-contained organisation, clearly recognisable as the authoritative body responsible for safety and health at work.

112. Secondly, it should have autonomy in its day-to-day operations. Much of its work will be executive and technical in character, and it should be allowed to do it without unnecessary interference.

113. Thirdly, it should be organised in such a way as to provide full scope for the effective application of the principles of responsible and accountable management. At present responsibilities in this field are not only divided between a number of separate government departments, but within each department responsibility is diffused vertically in departmental hierarchies that eventually culminate in senior civil servants and Ministers who devote to the subject whatever time they are able to spare from other competing preoccupations. At the top level of the new organisation there should be an identifiable

A new statutory framework

person able to give the subject undivided attention and single-minded direction; one voice that can pronounce authoritatively on matters of safety and health at work.

114. Fourthly, the 'user interests' in this field—that is to say the organisations of employers and workpeople, the professional bodies, the local authorities and so on—must be fully involved and able to play an effective part in the management of the new institution. A principal theme of this report is the need for greater acceptance of shared responsibility, for more reliance on self-inspection and self-regulation and less on state regulation. This calls for a greater degree of real participation in the process of decision-making at all levels. Responsibility lies with those who have a voice in decisions. It is essential, therefore, that the principles of shared responsibility and shared commitment should be reflected in the management structure of the new institution. We discuss this further in paragraphs 117-118.

Unified administration—the functions of a new institution

115. The new institution would be responsible for

- (a) The provision of advice to Ministers, government departments, local authorities, employers, trade unions, and others on safety and health at work.
- (b) Management of the statutory inspection and advisory services, including their supporting scientific and technical research facilities and institutions.
- (c) Administering and keeping under review the statutory and other provisions for safety and health at work. This would include formulating safety and health standards for promulgation either as codes of practice or in the form of statutory provisions (see chapter 5), and for co-operating with industry in monitoring the observance of those standards.
- (d) The acquisition and provision of information, and the promotion and co-ordination of research, education and training for safety and health at work.
- (e) Collaboration with the CBI and other employer-organisations, the TUC and the trade unions, the industry-level safety bodies and the voluntary safety organisations; and participation in the work of international bodies.

A national Authority for Safety and Health at Work

116. In the light of these views about the nature and functions of a new administering institution, we recommend the establishment of a national Authority for Safety and Health at Work. This should have a comprehensive responsibility for the promotion of safety and health at work, including powers to deal with immediate hazards to the public from industrial and commercial activities. It should undertake all of the functions listed in paragraph 115, and should have the maximum possible budgetary and operational autonomy.

117. To meet the essential need for 'user participation' (see paragraph 114), the Authority should be directed by a carefully constituted Managing Board. This would be an executive, not an advisory board. The distinction is vital. It is no secret that the main representative advisory committees which currently provide advice to government in this field—the Industrial Safety Advisory Council and the Industrial Health Advisory Committee—have not been altogether successful. They have met infrequently. They have no executive function. The fact of their existence has apparently done little to reduce the pressures which lead to protracted consultation on new or revised statutory regulations—a state of affairs which is one of the least happy features of the present system (see chapter 5). Representative advisory bodies of this kind have no way of ensuring that their advice really affects what the Government actually does, and consequently the interests represented on them are unlikely to feel any sense of direct participation in, or commitment to, the eventual decisions made. What is needed is participation in the actual making of decisions, both at technical level (in the detailed work of framing and revising codes of practice and statutory regulations which we discuss in chapter 5), and also in the overall management of the system, at the level where policy is determined. This participation should be ensured in the composition of the Authority's Managing Board.

118. The composition of the Managing Board would be as follows. There would be a full-time Chairman, a person of public stature who would become identified in the public mind as the authoritative voice on matters concerning safety and health at work. There would be a full-time Executive Director responsible for day-to-day management of the Authority's operations. There would also be a number of paid, part-time non-executive directors. These would fulfil very much the same function as do non-executive directors on the boards of public companies; that is to say they would bring to the Managing Board's policy deliberations their experience of a wide variety of walks of life and areas of interest. The part-time directors should include people with experience in the field of industrial management, in the trade union field, and in the medical, educational and local authority spheres. Meeting regularly—we would think at least once a month—all members would be able to play their part in the formulation of policy and in decision-making by the Board. They would both influence and be implicated in the decisions made. The Board would also have the benefit of advice on particular subjects from a number of expert advisory bodies which we discuss elsewhere in this report (see the organisation chart at the end of chapter 7).

The status of the Authority

119. Where and how would our proposed Authority fit into the central government machine? It seems clear that it could not suitably form part of an existing government department. To locate it within a government department would avoid any uncertainty about Ministerial responsibility and accountability to Parliament. But within a government department it would have no clearly recognisable separate identity. It would be difficult to constitute the Managing Board on the lines described, and difficult for the Board to establish its authority clearly and unambiguously. Responsibility at top level would remain diffused.

A new statutory framework

120. To take the extreme alternative, there would be advantages in establishing such an Authority entirely outside of the central government machine. But there appear to be three major obstacles to this. First, as the Authority would be financed from public funds there would have to be adequate government control over its general programme and budget. Secondly, the public interest and importance of safety and health at work is such that it would seem desirable to provide a rather more substantial link with government and Parliament than would be the case with an organisation entirely outside of the central government framework. Thirdly, whilst many of the Authority's functions would be of a kind which do not in the normal course call for Ministerial intervention—the promotion of research and safety training for example—the question of how it would exercise its responsibilities for the preparation, revision and enforcement of statutory provisions is one that raises Parliamentary and constitutional issues.

121. To meet these various considerations we recommend that the Authority should be a separate body with its own budget and staff, but functioning under the very broad policy directives of a departmental Minister—presumably the Secretary of State for Employment. The sponsoring Minister would appoint the Chairman, Executive Director, and members of the Managing Board and, in consultation with the Treasury, would determine the Authority's annual budgetary provision. The Managing Board would submit an annual report to the Minister. Within that framework the Authority would be an independent body, with full operational autonomy in the discharge of its functions as described in paragraph 115. It would also have full freedom in the recruitment and management of its own staff within the general framework of civil service pay and grading arrangements.

122. The sponsoring Minister would be responsible for the Authority's relations with government and Parliament. The Authority would have a duty to provide advice and information to the Minister as required. It would, for example, provide the Minister with any material needed for replies to Parliamentary Questions. The detailed work involved in making, revising and revoking statutory provisions would be done by the Authority, but the sponsoring Minister would be responsible for laying statutory proposals before Parliament in the normal way. The procedure would be not unlike that whereby the Secretary of State for Employment formally makes statutory Orders giving effect to proposals formulated by the independent Wages Councils, and Orders giving effect to certain types of proposal made by the independent Industry Training Boards. It is a reasonable presumption that on most matters the Authority's proposals would be acceptable to the sponsoring Minister. The Minister would, however, have power to refer any proposal back to the Authority for further consideration. An example of the sort of situation where this might be necessary would be if the Authority submitted legislative proposals that created difficulties for other government departments.

123. We recognise that what we recommend may have some novel aspects, but innovation is needed to meet changing circumstances. It is not difficult to visualise the broad pattern of relations between the sponsoring Minister and

the Authority, and no doubt adaptation in detail would flow from experience. We believe that an Authority with the composition, functions and status that we have outlined would be a major centre of initiative, institutionalising a new policy for greater self-government in safety and health at work.

Internal organisation and staff

124. We discuss details of the internal organisation and structure of the proposed Authority and its inspection services in chapter 7. The Authority would employ the personnel of a unified inspectorate and other staff necessary to carry out its functions and responsibilities. It is obvious that, in the first instance at least, a large proportion of the staff of the new organisation would be transferred with their existing duties from government departments which currently have safety and health responsibilities. It is not for us to lay down precise arrangements, but there would be everything to be said for initial experimentation and flexibility in staffing arrangements. Some staff would go to the new organisation on permanent transfer from their present departments, others might go on loan or secondment. There should be considerable scope for recruitment from outside the civil service, with a mixed pattern of short and long-term contracts. The interests of the personnel of the existing inspectorates would, of course, need to be adequately safeguarded.

CHAPTER 5

THE FORM AND CONTENT OF NEW LEGISLATION

125. We have recommended that the statutory provisions dealing with safety and health at work should be revised and reorganised; that so far as possible they should be unified within the framework of a single, comprehensive enactment; and that they should be administered by a new Authority for Safety and Health at Work. We now pursue some of these points in more detail. What type of legislation is required? What form should it take? In what ways should the basic provisions of the main Act be amplified and supported? In chapter 1 we enumerated a number of criticisms concerning the volume, complexity and nature of the existing statutory provisions. The proposals which follow are designed to meet those criticisms. They are based on the following general propositions. First, the detailed safety and health code should be underpinned by a clear, central statement of principles of general application. Secondly, in structure and presentation the new legislation and its supporting instruments should be readily intelligible to employers and work-people. Finally, the new provisions should provide a framework that is constructive rather than prohibitory. They should give practical guidance designed to promote a positive, progressive and responsible approach to safety and health at work.

An enabling Act

126. A great deal of evidence before the Committee stressed the need for a more streamlined and systematic presentation of statutory safety and health requirements. One of the least satisfactory features of the present legislation is the way in which the principal statutes deal with a considerable range of topics in varying degrees of detail and in apparently haphazard order. There is no consistent pattern in the way in which matters are dealt with in the main enactments, nor in the distribution of topics between the main enactments and supporting orders and regulations. As a result, employers and others frequently find it very difficult to form a comprehensive picture of the requirements that concern them. The presence in the main statutes of too much technical detail not only creates these presentational difficulties but also—since the main statutes can be amended only at infrequent intervals—contributes to the problem of obsolescence which we discussed in chapter 1.

127. We recommend that the new unifying statute should be primarily enabling in character. Its substantive contents should be limited to matters not likely to require frequent amendment. Detailed matters should be dealt with within an orderly structure of subordinate instruments which can be more easily amended when necessary. This would provide the clear, stable yet flexible legislative base that we think essential as a foundation for a practical and efficient code of occupational safety and health.

A statutory declaration of principles

128. What should the enabling Act contain? The present body of law comprises a wide variety of detailed provisions on specific matters, spread over a number of main statutes and a host of subordinate statutory instruments. No central statement of general principle governs this conglomeration of prescriptions and prohibitions. There is no unifying or co-ordinating theme. As a result, people tend to look at particular parts rather than the whole, and fundamental objectives and obligations are obscured.

129. We believe that the general principles of safety responsibility and safe working should be embodied in a statutory declaration which would set all of the detailed statutory and other provisions in clear perspective. We recommend, therefore, that the Act should begin by enunciating the basic and over-riding responsibilities of employers and employees. This central statement should spell out the basic duty of an employer to provide a safe working system including safe premises, a safe working environment, safe equipment, trained and competent personnel, and adequate instruction and supervision. It should also spell out the duty of an employee to observe safety and health provisions and to act with due care for himself and others.

130. We do not accept the argument that such a statement of basic principles would be too general to be meaningful and helpful in practice. • On the contrary, we think it would have important practical effects. A positive declaration of over-riding duties, carrying the stamp of Parliamentary approval, would establish clearly in the minds of all concerned that the preservation of safety and health at work is a continuous legal and social responsibility of all those who have control over the conditions and circumstances in which work is performed. It would make it clear that this is an all-embracing responsibility, covering all workpeople and working circumstances unless specifically excluded (see chapter 6) and applying whether or not a particular matter of detail is covered by a specific regulation. It would encourage employers and workpeople to take a less narrow and more rounded view of their roles and responsibilities in this field. It would provide guidance to assist in the judicial interpretation of detailed statutory provisions, a process that has sometimes created problems for those responsible for accident prevention (see chapter 17 and Appendix 7).

131. A governing statement of general principles would have particular relevance to the development of the wider role for the inspectorates that we discuss in chapter 7. The limited nature of some of the present work of the safety inspectors derives from their preoccupation with—and indeed to some extent their dependence upon—a large number of detailed statutory regulations unrelated to any over-riding general requirement. The statutory framework within which they work is a constrictive one, and they have no authority to go beyond it. When an inspector visits a workplace he should be concerned with the total picture as much as with those particular details which happen to have been made the subject of specific regulation; and for this he needs a broad statutory mandate.

132. A view put to us by some legal experts—although not shared by some others—was that a statutory statement of general principles is unnecessary

The form and content of new legislation

because it would amount to no more than a statement of the existing common law on this subject, that it would simply mean 'writing down a duty which we all know'. Our answer to this is that few laymen are familiar with the common law on this subject, however clear it may be to members of the legal profession.

133. Apart from the statement of general principles, the main Act should be limited to a number of essential matters. These would include :—

- (a) provisions for administering the Act, including provisions establishing the proposed Authority for Safety and Health at Work (see chapter 4) and defining the powers and functions of the Authority and its inspectors;
- (b) a general regulation-making power enabling the Authority to prepare such regulations as might be judged necessary about any matter affecting the safety and health of people at work, or about any related matters affecting the safety and health of the public (see chapter 10), and generally for carrying out the aims and purposes of the Act; together with powers relating to the use of non-statutory standards and codes of practice as discussed later in this chapter;
- (c) powers to make regulations on various specific matters of the kind discussed in chapters 10 and 11 (for example, for imposing licensing controls over the use and storage of dangerous substances);
- (d) powers to undertake and promote research and training;
- (e) provisions dealing with offences and penalties;
- (f) definitions of application and scope, and exclusions (see chapter 6);
- (g) transitional provisions dealing with the continuance of existing statutory provisions until replaced or revoked.

Supporting instruments

134. The general requirements of the main Act would be supported as necessary by more detailed provisions in the form of (a) statutory regulations and (b) voluntary standards and codes. The rest of this chapter is concerned with the nature of these two types of support, and the relationship and balance between them. In chapter 1 we described a number of weaknesses inherent in the nature of the detailed statutory regulations and in the use of a large and ever-growing number of such regulations. We concluded that what was needed was less law and more provision for voluntary self-regulation. The broad argument in the present chapter is that many of the defects we described in chapter 1 can be remedied by a switch in emphasis away from the extensive use of statutory regulations towards greater reliance on standards and codes of non-statutory origin. In future there should be more discrimination and selectivity in making statutory regulations. Thus the system would comprise a main Act, plus statutory regulations, plus codes of practice; but the intermediate stage of statutory regulations would often be dispensed with.

135. Before going on to discuss this general proposition in more detail we ought to comment on its implications for Parliamentary control. Under our proposals, much of the content of the present safety and health enactments

would appear in the form of statutory regulations, subject only to nozative resolution procedure in Parliament; and further, a great many safety and health provisions would appear in the form of non-statutory codes and standards. This implies some degree of recession from direct Parliamentary control. We believe that this is inevitable and must be accepted. The plain fact is that, given the limitations on Parliamentary time, Parliamentary scrutiny, debate and amendment of the bulk of occupational safety and health provisions is just not a practicable proposition. It will be for Parliament to ensure that the main Act is right, .and that the institutional arrangements set up under it are soundly conceived and capable of discharging the task of implementation. The proposed Authority for Safety and Health at Work would remain ultimately accountable to Parliament through the Minister responsible for the Authority's relations with the Government.

Statutory regulations

136. There is a clear need to reorganise the subject matter of the present array of Acts, orders and regulations. Re-casting of the legislation on the lines we have proposed would provide a major opportunity to devise a more orderly and comprehensible structure of subordinate provisions. Regulations made under the enabling Act would fall into three main groups. The first would deal with general matters applicable to most forms of employment, such as general environmental standards, notification of accidents, and so on. The second group would consist of regulations dealing with particular types of hazard, such as electricity or toxic substances. The third would deal with particular industries—such as agriculture, mining or construction—where it might be both convenient and helpful to group all the relevant statutory provisions together into comprehensive and self-contained industry-regulations. These would include provisions from general regulations, suitably modified where necessary, together with special provisions dealing with matters peculiar to the particular industry. The submissions made to us revealed a keen demand for comprehensive industry-regulations of this type.

137. Re-casting of the legislation would also provide the occasion for a determined effort to prune the deadwood from the existing body of regulations (see chapter 1). Apart from cutting out redundant regulations, it should be possible to harmonise or amalgamate provisions on basic subjects which are at present sometimes treated differently in different legislative codes (as, for example, in the case of some existing provisions concerning washing facilities, sanitary conveniences and first-aid). We understand that the Department of Employment undertook some preparatory work towards a comprehensive revision of regulations under the Factories Act in connection with the proposals for new legislation made in the 1967 First Consultative Document.* This work of overhaul and rationalisation should have high priority.

The style of new regulations

138. Regulations which lay down precise methods of compliance have an intrinsic rigidity, and their details may be quickly overtaken. by new

* See Appendix 8.

technological developments. On the other hand, lack of precision creates uncertainty. This is a problem to which our attention was repeatedly drawn during the course of the Inquiry. The need is to reconcile flexibility with precision. We believe that, wherever practicable, regulations should be confined to statements of broad requirements in terms of the objectives to be achieved. Methods of meeting the requirements may often be highly technical and subject to frequent change in the light of new knowledge. They should, therefore, appear separately in a form which enables them to be readily modified.

139. This approach has worked well in, for example, the administration of the Alkali etc. Works Regulation Act. The statutory obligations in respect of most processes controlled by the Act require the use of 'the best practicable means' of preventing the discharge of offensive smoke and gases. Standards which presumptively meet this requirement are published by the Chief Alkali and Clean Air Inspector after close discussion of the technical possibilities with all parties concerned. Another example of what we have in mind is provided by the Asbestos Regulations 1969, made under the Factories Act. These prescribe precautions to be taken to ensure that employed persons are not exposed to dust containing asbestos to such an extent as to be liable to cause danger to health. Guidance, including quantitative data, as to how the Factory Inspectorate will interpret this requirement, is contained in a Technical Data Note issued by the Inspectorate.* This approach, in which the statutory regulation is supplemented by detailed guidance produced by the inspectorates (or by reference to specifications contained in approved codes of practice or in British or international standards) is the one that most effectively reconciles the need to avoid • building obsolescence into statutory regulations with the desirability of providing precise guidance for those upon whom obligations are laid.

Consultation on regulations

140. An important factor contributing to the problem of obsolescence is the inordinate length of time that it frequently takes to introduce new or revised statutory regulations. This is largely due to the cumbersome nature of the pre-promulgation consultation process.

141. The problem is particularly acute in making regulations under the Factories and OSRP Acts, both of which lay down a consultation procedure that calls for the publication of a statutory draft, and requires that a public inquiry be held in the event of a 'general objection' to what is proposed. The effect of this has been that, in an effort to avoid objections, round after round of consultation with interested parties takes place. We do not propose to enter into the controversy, which was ventilated in evidence before the Committee, as to where the main blame for excessively protracted consultation lies. Suffice it to say that there have been notorious cases of regulations under the Factories Act that have been many years in the making. In recent years the average interval between the production of a first draft and eventual promulgation of the regulation has been five years. In one case the time lapse was fifteen years. This is manifestly absurd. We recommend, therefore, that

* Technical Data Note 13: *Standards for Asbestos Dust Concentration for use with the Asbestos Regulations 1969.*

in new legislation there should be a simple requirement to consult appropriate organisations, and no more than that. Similar difficulties have arisen in revoking old regulations, and again a streamlined procedure is needed. We do not underrate the importance of adequate consultation with interested parties before regulations are made which might affect people's livelihoods. In our view, however, the need is best met not by a long drawn out process of consultation at arm's length, but by associating outside interests more closely in the actual process of regulation-making and review. This is discussed further in paragraphs 155-160.

Voluntary standards and codes of practice

142. We have advocated that statutory regulations should be simpler in style and that the procedure for formal consultation on regulations should be less cumbersome. We go further than this. We recommend that in future no statutory regulation should be made before detailed consideration has been given to whether the objectives might adequately be met by a non-statutory code of practice or standard.

143. The question of the desirable balance between the use of statutory regulations and the use of non-statutory codes of practice and standards is a controversial one. Statutory regulations are subject to the approval of Parliament. They 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 to revise. They are more progressive in that they need not be restricted to minimum standards, and they are less likely to inhibit new developments. They are not, however, subject to Parliamentary scrutiny and approval, and they cannot be directly enforced.

144. There is ample evidence that both approaches can be effective. To take an example, accidents at power presses are usually serious and often entail amputations. The Department of Employment produced figures to show that the introduction of the Power Presses Regulations in 1965 was followed by a very significant fall in the number of reported accidents at machines subject to the regulations. These fell from 503 in 1964 to 159 in 1971. Although in the nature of things a direct causal connection cannot be demonstrated, it is difficult to dispute that these figures constitute strong *prima facie* evidence of the effectiveness of statutory regulations in certain circumstances. Similarly, we found persuasive the reasoning which led the Ministry of Agriculture, Fisheries and Food to prepare the Agriculture (Tractor Cabs) Regulations in 1967, which became effective in 1970. Although it is too early to evaluate the impact of these regulations in reducing the number of serious accidents caused by overturning tractors, the evidence of overseas experience of the benefits of tractor safety cab regulations is impressive.

145. At the same time, there is also much evidence that codes of practice have been highly effective in areas where the framing and implementation of effective statutory regulations might have proved difficult or impossible. One

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example is the *Code of Practice on Protection from Ionising Radiations in Research and Teaching*. This was prepared by a representative body of experts, and its implementation is supervised by an advisory unit of the Factory Inspectorate. Other examples of excellent voluntary codes and standards include the codes of safe practice issued by the Institute of Petroleum; the *Code of Practice for the Maintenance of Fixed LPG Vessels* published by the Liquefied Petroleum Gas Industry Technical Committee; and a large range of codes and standards promulgated by the British Standards Institution.

146. We heard a great deal of evidence on the subject of regulations versus voluntary codes. It seems to us that in every case where the setting of some kind of standard seems necessary or desirable, it would be sensible to consider whether the objective is likely to be achieved more speedily and effectively through a statutory regulation, or through a non-statutory code of practice or standard. The answer will depend on a number of factors, including whether or not the nature of the particular problem can be precisely described and is unlikely to change in the foreseeable future; whether or not the measures to be taken can be precisely described and are unlikely to change; and whether or not a satisfactory voluntary code or standard exists or can be quickly prepared.

147. We are in no doubt that as a general rule a non-statutory code or standard is to be preferred to a statutory regulation in the interests of intelligibility and flexibility, and as a means of providing practical guidance towards progressively higher standards. That apart, we have already pointed out (chapter 1) that the sheer volume of statutory regulations has virtually reached the point of unmanageability, and some new departure is essential in order to alleviate this problem. We recommend, therefore, that greater emphasis should be placed in future on standard-setting by means of non-statutory codes of practice and standards. As a general rule, statutory regulations should only be made when the alternative of a non-statutory code or standard has been fully explored and found wanting.

The use of non-statutory codes and standards

148. Our recommendation that more use should be made of voluntary codes and standards and less of statutory regulations is quite central to the philosophy of this report. Some of those with whom we discussed the general proposition expressed uneasiness that it might be interpreted as a move towards a watering-down or relaxation of control; that non-statutory standards and codes might be difficult to enforce in precisely those cases where strict enforcement measures might be needed; and that in the result there could be some falling-off in the degree to which adequate standards are actually achieved at workplaces. We must therefore make our position clear. We are not advocating a slacker approach. On the contrary, elsewhere in this report we indicate areas where statutory provision is inadequate and should be tightened. What we are suggesting is that the whole system should be more flexibly based and more discriminating. The means used should encourage industry to deal with more of its own problems, thereby enabling official regulation to be more effectively concentrated on serious problems where strict official regulation is appropriate and necessary. For the reasons we have

enumerated we believe that standards and codes developed within industry and by independent bodies are, over a large part of the field, more practical and therefore potentially more effective instruments of progress than statutory regulations. But we can understand why doubts have been expressed: non-statutory codes and standards come in many different guises, and some appear to have been more effective than others in influencing what actually happens. It is necessary, therefore, to pursue our ideas in more detail in order to meet these doubts.

149. There is no simple definition of what constitutes a non-statutory or voluntary code of practice or standard. They emerge in a variety of ways and in a variety of forms. Some are prepared and promulgated by government departments, others by independent bodies such as the British Standards Institution, still others by joint safety committees or employer organisations at industry-level. They may describe desirable procedures or systems, or specify requirements in design, materials and performance. They may be concerned specifically with safety and health, or with quality generally. The constant multiplication of non-statutory codes of diverse origin and authority can be as confusing and unhelpful as the multiplication of statutory regulations. We suggest that some measure of control and co-ordination can be injected into this area without inhibiting the continued spontaneous development of good safety and health standards. There are a number of ways in which this might be achieved.

150. First, we have already suggested that there is considerable scope for making explicit reference in particular statutory regulations to existing voluntary codes of practice and standards. This is already done to a limited extent, as, for example, in the Agriculture (Tractor Cabs) Regulations 1967 which include a provision that tractor safety cabs will meet the requirements of the regulations only if they are capable of satisfying the relevant British Standards Specification published by the British Standards Institution. We recommend that this practice of supplementing regulations by linking them with independent codes and standards should be developed more extensively.

151. Secondly, where no relevant regulation or suitable voluntary code or standard exists but some guidance is considered to be necessary, the Authority should be able either to undertake, or to sponsor, the preparation of an approved non-statutory code as an alternative to preparing a statutory regulation on the matter in question.

152. Thirdly, the new legislation should contain powers enabling the proposed Authority to publish lists of voluntary codes and standards which they regard as conforming to the general purposes of the Act, whether or not specific regulations have been made on the subjects dealt with in those codes and standards. Here we should make it clear that we do not propose that the Authority should set out to vet all codes and standards produced by the various bodies active in the field of quality assurance. It would need to pick out and give formal recognition only to those voluntary codes and standards which are directly relevant to the Authority's specific purposes and responsibilities.

The form and content of new legislation

153. Fourthly, whilst the voluntary codes and standards which are given formal recognition by the Authority in these various ways will not in themselves impose general legal obligations, there must be a procedure for ensuring that they can be taken into account where necessary in enforcement proceedings. What we have in mind here is that the reduction we propose in the amount and detail of general statutory regulation must be coupled with new administrative procedures for enforcement, and we discuss these at length in chapter 9. Briefly, our intention is that inspectors should have power to issue improvement notices in individual cases, taking into account not only any relevant statutory regulation but also any relevant voluntary code or standard that has been formally approved by the Authority in one or other of the ways mentioned. Such codes and standards would be admissible in evidence in proceedings before tribunals (see chapter 9) in much the same way as the provisions of the Industrial Relations Code of Practice are admissible in proceedings under the Industrial Relations Act.

154. Thus in deciding whether and how new or revised standards should be set there would be a range of choices. Consideration would be given to whether the objective could best be met by a statutory regulation, by a non-statutory code or standard, or by a combination of both. The Authority for Safety and Health at Work would be able to approve for its purposes (see paragraphs 152 and 153) an existing code or voluntary standard. Where no suitable code or standard existed, it would be able to prepare one or sponsor the preparation of one by some other organisation. We now consider the important question of machinery to assist the exercise of these choices.

An Advisory Committee on Regulations and Codes

155. New machinery is needed for making and revising statutory regulations on occupational safety and health, and for relating this work to work on voluntary standards and codes of practice. Government departments accept that effective regulations cannot be made without the active collaboration of experts from within industry and commerce. At present this collaboration is achieved in ways that sometimes appear needlessly indirect and time-consuming. What appears to happen in most cases is that departments prepare draft regulations, send them to outside organisations, receive comments, hold discussions, publish fresh drafts and so on. This seems a cumbersome way of doing business. In our view there should be closer integration of the contribution of external interests and expertise from start to finish. This would require formal arrangements at two levels—at the level of general policy and at the level of detailed technical content.

156. At general policy level the Authority should be advised and assisted in the framing and revision of regulations by a standing Advisory Committee on Regulations and Codes. The Committee should include representatives and experts from appropriate outside organisations. It should be serviced by the Authority, and the Authority's own legal experts (see chapter 7) would obviously play an important part in its work. The Committee's main function would be to assist in the broad task of keeping the corpus of statutory regulations under review and up to date. Proposals for new or revised

statutory regulations, or for the revocation of regulations, would sometimes emerge from within the Committee itself, but in any event all such proposals would pass through the Committee.

157. It will be clear from what we have said earlier that consideration of regulations cannot effectively be undertaken without simultaneous consideration of the relevance of existing or potential codes of practice and voluntary standards. The Committee would advise on the balance between statutory regulations and non-statutory codes and standards; on the linking of statutory requirements with detailed guidance in non-statutory codes; and on recognition of approved codes. Detailed work would be undertaken by technical working parties, which we discuss below.

158. We do not suggest that the Advisory Committee should in any way act to discourage the spontaneous development of voluntary codes and standards by other bodies, or that it should assume the task of approving or disapproving all such codes and standards. The Committee's work in this field should be performed selectively, and only to the extent necessary for the Authority's purposes under the Act. It would be concerned solely with codes and standards of direct relevance and application to specific questions of occupational safety and health (see paragraph 152). The actual work on most of these would continue to be undertaken by the existing independent organisations.

Technical working parties

159. The Advisory Committee would have neither the time nor the expert capacity to become closely concerned with the technical detail of individual regulations, codes and standards. We envisage that technical working parties would be appointed as the need arose to undertake the detailed work on new proposals. These working parties would be serviced by the Authority and the aim would be to include the best available expertise from independent organisations and from industry. The problem of obtaining the services of appropriate individuals would be lessened by the fact that the working parties would be set up ad hoc, and disbanded as soon as they had completed their task.

160. All government departments involved in the making of regulations have made it clear how much they depend on the close and active collaboration of experts from within industry and professional organisations. We believe that the introduction of a clear system of working partnership on the lines proposed would both improve the quality of regulations, and greatly reduce the time needed for any formal consultation before promulgation.

Summary

161. Our findings and recommendations in this chapter can be summarised as follows :—

- fa) There should be a new, comprehensive Act dealing with safety and health at work. The Act should contain a clear statement of the general principles of responsibility for safety and health, but otherwise should be mainly enabling in character. The Act should be supported by a combination of regulations and non-statutory codes and standards.

The form and content of new legislation

- (b) The existing body of statutory regulations is in need of thoroughgoing rationalisation and pruning. Regulations made in future should be simpler in style. So far as practicable they should be limited to the prescription of general requirements. Detailed specifications and guidance on the implementation of the requirements should be provided by other means, such as approved non-statutory codes and standards.
- (c) As a general rule, non-statutory standards and codes of practice provide the most flexible and practical means of promoting progressively higher standards of safety and health at work. They should be used more extensively in future. This change in emphasis should be accompanied by arrangements for increasing their impact.
- (d) In keeping the corpus of regulations under review and in maintaining a better balance between the use of regulations and the use of voluntary codes and standards, the Authority should be advised by an Advisory Committee on Regulations and Codes. Detailed work on technical content should be undertaken by expert technical working parties set up ad hoc and including the best available expertise from inside and outside the Authority.

CHAPTER 6

THE APPLICATION AND SCOPE OF NEW LEGISLATION

Placing obligations

162. On the question of scope, many submissions to us said little more than that new occupational safety and health legislation should cover all employed persons. The question is not quite as simple as that. In discussing what is desirable and possible it is necessary to be quite clear about what one is seeking to do, and to recognise that there may be practical limitations to what can be realistically achieved.

163. The broad objective is to improve the conditions in which people work—to protect workpeople from hazards and to ensure so far as practicable that their working environment is a healthy one. If legislation designed for this purpose is to be meaningful in practice it must allocate responsibilities realistically. In determining questions of application and scope it is of fundamental importance to ensure that the outcome enables obligations to be placed on clearly identifiable persons who can reasonably be held responsible for the matters in question.

164. In the sphere of occupational safety and health this will usually be the employer in the first instance. Under the new legislation proposed in chapter 5, employers would have a general duty to provide safe working systems, adequate training and supervision, and so on, as well as particular duties under detailed regulations. There would be concurrent obligations on other categories of person for particular purposes. Thus the primary duty of the employer would co-exist with statutory responsibilities placed upon the manufacturer for the design and supply of safe equipment and machinery (see the section of chapter 11 which deals with design and manufacture) and upon the occupier of the workplace (frequently but not always the employer) for safe premises, safe access to work, etc. To the extent that an individual employee might in the result be covered by the overlapping responsibilities of more than one person (employer, occupier, manufacturer) his degree of protection would be enhanced. There are, however, some situations where it is not easy to find someone upon whom it would be proper or meaningful to place obligations, and we mention some of these later.

The scope of *new* legislation

165. The coverage of the legislation can be determined by defining its application in terms of premises, activities or persons. Each of these approaches presents both advantages and problems. The existing Factories, OSRP, and Mines and Quarries Acts all define the premises or types of workplace to which they apply. In contrast, the Agriculture (Safety, Health and Welfare Provisions) Act applies to 'workers employed in agriculture'.

166. The Department of Employment's First Consultative Document* on proposed safety and health legislation, issued in 1967, outlined proposals for

* See Appendix 8.

amalgamating and greatly extending the scope of the Factories and OSRP Acts. The document proposed that a new Act should apply—save for certain specified exclusions—to all premises in which persons are employed and to a number of defined processes or operations. However, if the general aim is to secure comprehensive coverage of the workforce, any approach in terms of premises or activities poses major difficulties. The 'premises' approach is unsatisfactory in principle since it means that whether or not a person falls within scope will depend not on what he is doing but on where he is doing it. Moreover, as experience has shown, this approach gives rise to considerable difficulties of definition and provides much scope for litigation and judicial interpretation, in the process of which fine distinctions may be drawn which are unrecognisable in real life. For example, parts of the Royal Opera House Covent Garden are regarded as 'factories' and 'shops' within the meaning of existing legislation, whilst other parts are not within scope of any of the present occupational safety statutes. The 'activities' approach is no easier. A major drawback to any approach which relies extensively on definitions of activities or processes is that it entails drawing up an increasingly lengthy list of activities without any guarantee that the resultant coverage will ever be really comprehensive. Certainly any such list will require frequent additions and modifications as new developments take place. Eventually the Department of Employment came to the conclusion that the new legislation envisaged in the First Consultative Document should be framed in terms of the employment relationship, that is to say that it should apply to all persons employed under a contract of service, save only for certain specified exclusions.

167. We have recommended in chapter 4 that existing occupational safety and health legislation should be brought under single administration and, so far as may be practicable, amalgamated to form a single legislative code. We have also seen that the piecemeal development of the present statutory provisions has resulted in a very patchwork coverage of the working population. Some 5 million people work in situations which are not within scope of present occupational safety and health legislation, including most of those working in schools, colleges and universities, hospitals, road haulage depots and places of entertainment, to mention only a few examples.

168. An extension of scope to cover all workpeople is not a matter to be undertaken lightly. It must lead to additional costs for both industry and the taxpayer. Nevertheless we consider the present anomalous situation to be indefensible. Looked at from a general health and amenity point of view, the provision of reasonable basic standards in the working environment is something that all employees alike are entitled to expect. Looked at from the angle of protection against specific hazards, the fact is that some workers excluded from the scope of present protective legislation are doing work which can be as much or more dangerous than the jobs of some of those who are included. For example, much complex and potentially dangerous equipment is used in theatres, and many dangerous substances are handled in hospitals.

169. Some people are prepared to argue that occupational safety and health legislation should be limited to dealing with situations of specific and demonstrable risk. It is clear that from time to time this attitude has influenced

the thinking of legislators. Nevertheless, the earliest factories legislation was concerned not so much with specific hazards as with general health and amenity, particularly in regard to the conditions of work of women and young persons. This concern with general health and amenity has remained an important feature of the legislation and, indeed, the Offices, Shops and Railway Premises Act 1963 is basically and for the most part a statute concerned with the general healthiness and comfort of the working environment. More characteristically, the legislation as exemplified in the present Factories, Mines and Quarries, and Agriculture (Safety, Health and Welfare Provisions) Acts is an amalgam of two different types of provision, i.e. provision for protection against specific dangers such as unguarded machinery, and provision for ensuring minimum standards of general health and amenity.

Employed persons

170. It is now a matter of general acceptance that all workpeople are entitled to expect reasonable minimum standards of health and amenity in their working environment. It seems to us to follow from this that new safety and health legislation should be so framed as to bring within its scope all workpeople whatever they do and wherever they work, to the extent that this can be achieved in a realistic manner.

171. We recommend first, therefore, that the scope of the new legislation should extend to all employers and employees except in circumstances that are specifically excluded. This approach avoids some of the worst (although by no means all) of the difficulties inherent in defining scope in terms of premises and activities. It is the approach adopted in comparable overseas legislation as well as in recent legislation in this country concerning workpeople such as the Contracts of Employment Act 1963 and the Redundancy Payments Act 1965. It would not only bring within scope substantial numbers of workpeople clearly outside the protection of present occupational safety and health legislation, but it would also cut through some existing areas of doubt and confusion—for example, the uncertainties about how far the present legislation applies to those engaged in installing machinery in factories.

172. It should be noted that this wide-ranging approach is by no means without its own problems. The main difficulty facing those concerned with framing provisions of general application would be that of visualising the wide range of actual circumstances that might fall within scope. In some cases the obligations that could be realistically imposed on the employer would be limited, as in the case of employers whose employees spend most of their time away from a fixed base—such as postmen, salesmen, milkmen, furniture removers and so on. In other circumstances, enforcement in the traditional sense would be very difficult, as with itinerant workers such as fairground and circus employees, and mobile construction gangs. These difficulties should not be exaggerated. In practice they are unlikely to prove more significant than some of those which exist at present. As regards enforcement we see no objection to 'enforcement on complaint' in circumstances where some form of more regular inspection is impracticable, and in any event we propose changes in the practice of regular 'routine' inspections (see chapter 7).

The application and scope of new legislation

The self-employed

173. Some of those who made submissions to us argued that new safety and health at work legislation should explicitly cover the self-employed and impose appropriate duties on them. They pointed out that in many parts of industry and commerce self-employed persons work in circumstances where their acts and omissions are very likely to have a direct bearing on the safety of employed persons. Moreover, the example set by self-employed persons can influence the behaviour of employees. These circumstances arise particularly, although not exclusively, in the construction industry and in agriculture and forestry.

174. The extent to which in certain circumstances existing statutory safety requirements effectively apply to self-employed persons is a matter of some uncertainty. In the Phelps-Brown Report on self-employment in the construction industry* it was pointed out that a self-employed man in the construction industry need only observe statutory safety regulations to the extent necessary to protect employed persons, and that 'providing no risk is foreseen to employees, a piece of scaffolding to be used only by self-employed bricklayers may depend on oil drums supported by piles of loose bricks. It might be that this will continue to be used when, for example, employed joiners come to put in the joists' (Report, paragraph 411). The Report also stated that 'HM Factory Inspectorate report considerable difficulty in applying safety legislation to the self-employed and find this tends to bring the regulations into disrepute' (Report, paragraph 370).

175. We recognise that there are practical difficulties in enforcing the application of this type of legislation to the self-employed. Nevertheless we are in no doubt that the attempt has to be made. We therefore recommend—further to our recommendation in paragraph 171—that those who work on a self-employed basis in circumstances where their acts or omissions could endanger other workers (employed or self-employed), or the general public, should be brought within scope of the new legislation.

176. Of course people work on a self-employed basis in a very wide variety of circumstances, and we recognise the difficulties of drafting specific provisions under this head without extending the scope of the legislation unnecessarily and bringing in many unforeseen situations. What we have proposed above is intended as an expression of objective rather than as a form of words. Given the complexities, it does not seem practicable to formulate a precise general rule for all circumstances. However, in the drafting of specific provisions in regulations we suggest that the main general considerations to be borne in mind are as follows :—

- (a) First, it is clearly undesirable that employees should be exposed to hazards through the acts of self-employed persons. Some existing statutory regulations—such as the four sets of Construction Regulations and the Asbestos Regulations 1969—contain provisions designed to ensure that this does not happen. As we have indicated, it is not at all clear how effective these existing provisions are in practice, at least in the construction industry.

* *Report of the Committee of Inquiry under Professor E. H. Phelps-Brown into Certain Matters Concerning Labour in Building and Civil Engineering*. Cmnd 3714, HMSO 1968.

- (h) Secondly, it is also undesirable that large groups of self-employed people—such as are to be found in the construction industry (it has been estimated that as many as 200,000 workers in the construction industry work on a self-employed basis)—should fall outside the scope of protective legislation so far as their own safety and health are concerned, as appears to be the case at present.
- (c) Thirdly, the general public must be adequately protected. In paragraph 178 and in chapter 10 we recommend that the new legislation should be so framed as to ensure the protection of the public from hazards arising directly from industrial and commercial activities. It is plain that if the public is to be protected against, for example, the danger of materials falling from a scaffold, this must be done whether or not those erecting the scaffold are employees or are self-employed.
- (d) Finally, whilst as a general principle it may be thought undesirable to attempt to impose legal obligations on a single self-employed individual for his own protection, we doubt whether in reality there are many serious risk-situations that are exclusively confined to one individual. For example, where a self-employed individual gets into difficulties during a work operation, it is quite likely that others may be put at risk in going to his assistance. Or to take another kind of example, many farms have no regular employees but the use of unsafe machinery and materials on such a farm constitutes a risk to others besides the self-employed farmer. Those exposed to risk may include children (for whom special provision is already made in the Agriculture (Avoidance of Accidents to Children) Regulations 1958); casual employees; regular callers on business; and in some circumstances members of the public generally.

177. Generally speaking, the obligations falling upon a self-employed person in circumstances such as those outlined above should be those which would fall upon him if he were employing someone to do the work. There may, however, be situations where groups of self-employed persons may be to all intents and purposes in the same position as employees as regards their methods and conditions of work, that is to say their methods of work and working environment may not be within their direct control. In such cases their obligations should be to co-operate in complying with any relevant safety provisions. It will be for those who frame each particular regulation to make the necessary distinctions, depending on the circumstances, between cases where it may be appropriate to impose 'employer-type' obligations on the self-employed, and those where it may be appropriate to impose 'employee-type' obligations.

The general public

178. We discuss the position of the general public separately in chapter 10, where we recommend that safety and health at work legislation should apply explicitly for the protection of the general public as well as workpeople.

General exclusions

179. Some general exclusions may be necessary to avoid entanglement in situations which are manifestly not susceptible to control by occupational

safety legislation, or to avoid overlap with other bodies of legislation. As a matter of principle the legislation should not have the effect of imposing obligations on employers concerning circumstances over which they have no control, such as when employees are normally working neither at their home base nor at other premises or sites within the control of an employer. Thus we would exclude from the scope of the legislation the normal use of the highway. This relates particularly to peripatetic workers of the kinds mentioned in paragraph 172, although in such cases the employer should not be absolved from responsibility for providing safe equipment, instruction, etc. Similar considerations apply in the case of transport workers, which we discuss as a special category in paragraphs 182-184.

180. Another matter of general principle is that the legislation should not have the effect of imposing duties associated with the employer-employee relationship upon private individuals within their own homes. It is clear, of course, that certain specific regulations such as, for example, those dealing with the keeping, labelling, etc. of intrinsically dangerous substances would be as applicable in private households as anywhere else. But we do not believe that there would be widespread support for the idea of enforcing general occupational safety and health provisions in the sphere of private domestic service. Consequently, we think that private domestic service should be excluded from the scope of the legislation. The legislation should, however, apply to homeworking in the sense that it is reasonable to impose duties on an employer to provide safe materials and equipment and adequate instruction for those who are employed by him but who actually undertake the work in their own homes.

181. There are thus two main areas for general exclusion, viz, the normal use of the public highway, and private domestic service. We now turn to consider some cases where special considerations apply.

Transport workers

182. In view of our terms of reference we have not sought to examine to what extent existing transport legislation adequately provides for the safety and health of those engaged on transport operations. We accept that transport safety is a vast study in its own right, involving many technical problems of a highly-specialised nature. Provisions for the safety and health of those engaged in flying aircraft, driving trains, lorries and so on clearly cannot be considered in isolation from a whole complex of special considerations such as the constraints imposed by the design of transport vehicles; the circumstances in which they operate which include many eventualities beyond the control of an employer; and the predominant need—in terms of numbers at risk—to safeguard the travelling public and the public generally. We accept that these matters must be dealt with within transport legislation.

183. Having said that, there is no reason why basic standards of health and amenity should not be ensured for transport workers at their static bases in the same way as for any other workers. We have no evidence about the extent to which existing transport legislation fills, or even purports to fill, this need. At the same time the haphazard application of the present occupational safety and health legislation in this area defies any principle of logic or equity. For

example, ships' crews engaged in loading and unloading are covered by the Docks Regulations under the Factories Act, but when engaged in port on maintenance work such as painting they are outside the scope of the regulations which cover shore-based employees who might be working alongside them on identical tasks. To take another example, railway employees are covered by the Offices, Shops and Railway Premises Act insofar as it applies to station buildings, offices, signal boxes, etc. but operations on railway bridges, in tunnels or in the yards adjacent to station buildings are outside the scope of the Act. Or again, the transfer of certain depots from the British Railways Board to new freight companies set up under the Transport Act 1968 had the effect of removing those depots and most of the persons employed in them from the scope of the Offices, Shops and Railway Premises Act (except where the premises are jointly occupied by the Railways Board and the companies). Offices connected with these depots, however, remain within the scope of the Act.

184. The present confused and unsatisfactory situation arises because those employed in the various transport industries fall within scope of the main occupational safety and health statutes only when 'defined in' by virtue of working in particular premises or on particular operations. We recommend that all workers in the transport industry should be covered by the new legislation, in all circumstances save those which are specifically 'defined out'. The extent of their exclusion should be very closely circumscribed, in some such terms as 'whenever manning a moving train, aircraft, vehicle on the road . . . etc.' The effect of this would be to extend the general occupational safety and health provisions to all transport workers except whilst they are directly engaged on transport operations.

Hospitals and educational establishments

185. Application of the legislation to hospitals and educational establishments requires special consideration. We are not satisfied from the evidence that maintenance of standards of safety and health for employees in these establishments is so uniformly satisfactory that it is unnecessary to bring them within the ambit of the new legislation. Nevertheless, in considering the application of detailed provisions to hospitals and educational establishments there are some special factors that need to be catered for.

186. It has to be recognised that despite much re-building in recent years the nation's stock of hospitals and schools still includes old and unsuitable premises which can be improved or replaced only gradually and at very considerable cost. Moreover, in expending the resources available at any given time for the improvement of standards in such premises, it is obvious that the needs of employees, patients, pupils and students must all be taken into account. It is difficult to visualise situations where there would be any real conflict or competition between these needs, but the point has to be borne in mind.

187. At the same time the problem of costs should not be exaggerated. In 1969 a joint team consisting of representatives of the Department of Employment and the University Grants Committee estimated that it would cost £2

The application and scope of new legislation

million to bring all university premises where persons are employed up to the environmental standards laid down in the present legislation. A similar joint exercise with the Department of Education and Science indicated that it might cost something in the order of £55 million to make necessary improvements in lighting standards at schools and institutions of further education, but we think that this high estimate may be open to question. In any event we understand that many improvements to school premises have been completed since that estimate was made.

188. Subject to what we say in paragraph 189 about research laboratories, we think that the general approach here should be as follows. First, provisions dealing with specific hazards such as dangerous machinery or electricity—which usually take the form of statutory regulations—should apply to hospitals and educational establishments in the same way as to any other place of work (in the case of NHS hospitals the provisions should apply so far as is consonant with the privileged position at law of the Crown—see paragraph 250). Secondly, provisions dealing with general health and - amenity matters affecting the structure and use of premises, such as lighting, heating and ventilation, should be contained in comprehensive codes of practice approved by the new safety and health Authority. A nucleus of such codes already exists in the safety and health booklets and memoranda produced for the guidance of the hospital service by the Department of Health and Social Security, and for educational establishments by the Education Departments. In the universities field, the Committee of Vice-Chancellors and Principals has recently drafted a general code of safe practice to be applied throughout universities for the benefit of staff and students alike. The main need here is that these codes should be vetted and approved by the central Authority, and that there should be positive arrangements for monitoring their observance. The question of who should be responsible for day-to-day supervision poses some problems, and we discuss these within the general context of our discussion of inspection by local authorities (see chapter 8).

Educational research laboratories

189. Broadly speaking, the existing occupational safety and health legislation applies only to laboratories within industrial establishments and concerned with production development. Educational research laboratories are at present excluded. They should not be excluded from scope of the new enabling Act, but under it they should be accorded special treatment. Research is by definition concerned with unknown factors. The materials and equipment used are frequently in themselves experimental, and the creation of potentially dangerous conditions may be a part of the research process. The directing personnel are highly trained and qualified. It is necessary here to aim for reasonable and appropriate standards of safety and health without restricting or impeding the basic function of research and teaching. We think that this aim can best be met by a comprehensive code or series of codes of practice covering educational research laboratories, approved by the central Authority for Safety and Health at Work and subject to its advisory supervision. The arrangements for supervision by the Factory Inspectorate of the *Code of Practice for the Protection of Persons exposed to Ionising Radiations in Research and Teaching* provide a good precedent.

CHAPTER 7

THE INSPECTORATES

190. During the course of the Inquiry we spent a lot of time talking to members of the various safety and health inspectorates. We had the benefit of the views of most of the chief inspectors and many of their senior colleagues. Each of us accompanied individual inspectors on visits to factories, mines and farms. Written and oral evidence was given by the Institution of Professional Civil Servants, which represents most of the personnel of the central inspectorates. In the local authority field we had advice and views from the local authority Associations. We also heard from the Association of Public Health Inspectors, the Sanitary Inspectors' Association of Scotland, the Institute of Shops Act Administration and the National and Local Government Officers Association, all of which are organisations with members engaged in safety and health inspection.

191. We are glad to pay tribute to the unstinting co-operation we received from the inspectorates, and to record our admiration of their work. If there is criticism in this chapter, it is criticism of the inadequacies of the system rather than of individual inspectors who work within it. In proposing changes in policy, organisation and methods we are conscious that in this field 'tradition and the sturdy independence expected of an inspector do not make changes easy'.* Nevertheless we believe that many inspectors will welcome the challenges and opportunities presented by our proposals.

192. In this chapter we concentrate on the central government inspectorates. Inevitably, much of what is said is based on a view of the organisation and work of the Factory Inspectorate, which accounts for over two-thirds of the total full-time personnel of the central inspectorates. Few generalisations are equally applicable to all of the inspectorates, and some of our conclusions apply to the Factory Inspectorate more than to others which to varying degrees differ from it in size, methods and philosophy. Nevertheless, we have not ignored the others in framing our main proposals. We discuss local authority inspection services in chapter 8.

Growth of the inspectorates

193. The inspectorates with which we have mainly concerned ourselves are as follows:—

- Factory Inspectorate (Department of Employment)
- Mines and Quarries Inspectorate (Department of Trade and Industry)
- Agriculture Safety Inspectors (Agriculture Departments)
- Explosives Inspectorate (Home Office)
- Nuclear Installations Inspectorate (Department of Trade and Industry)
- Radiochemical Inspectors (Department of the Environment)
- Alkali and Clean Air Inspectorate (Department of the Environment)

* 1969 *Annual Report of HM Chief Inspector of Factories*. Cmnd 4461, HMSO 1970.

The inspectorates

194. The oldest and largest inspection agency is the Factory Inspectorate, within the Department of Employment. The first four factory inspectors—Homer, Saunders, Rickards and Howells—were appointed in 1833 to enforce the 1833 Act to Regulate the Labour of Children and Young Persons in the Mills and Factories of the United Kingdom. As successive Acts steadily widened the scope of the original legislation, the inspectorate gradually increased in size. The first chief inspector was appointed in 1878. The number of inspectors totalled 55 in 1882 and by 1902 had risen to 152. The first medical inspector was appointed in 1898, the first engineering specialist in 1899, and the first electrical specialist in 1902. There are now over 700 factory inspectors. Some 450 of these constitute the general inspectorate, spread over 11 divisional offices and 101 district offices. They are responsible for the inspection of something in the order of 400,000 premises under the present Factories and OSRP Acts. They are backed by groups of specialists in mechanical, chemical, electrical and civil engineering, most of whom are located at headquarters. In 1971 the former medical branch was incorporated into a new Medical Services Division of the Department of Employment. One of the main functions of the new Division is to supply medical advice to the inspectorate, and both the Factory Inspectorate and the Medical Services Division come under the control of the Department's Director of Occupational Safety and Health. In recent years, specialist construction inspectors and fire inspectors have been recruited to work within the Factory Inspectorate's field organisation.

195. Next in age and size is the Mines and Quarries Inspectorate, which comes under the Department of Trade and Industry. The first four coal-mines inspectors were appointed in 1850. The size of the inspectorate grew as the scope and complexity of mines legislation increased. Quarries were included in 1894, and by 1914 there were 84 inspectors. The inspectorate totalled 163 in 1960. Thereafter, with the contraction of the coalmining industry, numbers began to decrease. There are now 135 inspectors, some 20 of whom are located at headquarters in London with the remainder spread over 2 divisions and 13 districts. About two-thirds are mining engineers. The others include electrical, mechanical and civil engineers, and quarry inspectors.

196. In agriculture, the organisation of safety and health inspection follows a rather different pattern. In England and Wales, the Agriculture (Poisonous Substances) Act 1952 and the Agriculture (Safety, Health and Welfare Provisions) Act 1956 are administered by the Ministry of Agriculture, Fisheries and Food. There are 44 full-time safety inspectors spread over headquarters, 8 regions and 31 divisions. These are responsible for the technical aspects of farm safety, but the actual day-to-day safety inspection of farms is carried out on a part-time basis by some 420 field officers. The field officers are part of the Ministry's general divisional structure, and in visiting farms they have three main functions—vetting applications for grants and subsidies; statutory and advisory work on pest control; and farm safety. On average a field officer spends rather more than a quarter of his time on safety work. The field officer is under the operational control of the Divisional Executive Officer, not the Divisional Safety Inspector. In Scotland, farm safety provisions are enforced by the Wages and Safety Inspectorate of the Department of Agriculture and Fisheries for Scotland. The nine outstationed inspectors each spend about one-third of their time on farm safety work.

197. The Explosives Inspectorate of the Home Office came into being with the Explosives Act of 1875, following a series of explosions in previous years which had demonstrated that the provisions of earlier legislation were being widely disregarded. There are now nine explosives inspectors, all based in London. They have responsibilities under the Explosives Acts 1875 and 1923, and the Petroleum (Consolidation) Act 1928.

198. The Nuclear Installations Act of 1959 led to the formation of the Nuclear Installations Inspectorate, now under the wing of the Department of Trade and Industry. At present there are about 70 inspectors, some based at headquarters in London and some outstationed at Liverpool. They have responsibilities in relation to the licensing of all nuclear installations other than those of government departments and the UKAEA.

199. The six radiochemical inspectors of the Department of the Environment advise on the technical aspects of the application of the Radioactive Substances Act 1960, that is to say they are concerned with the registration of users of radioactive material and with the authorisation of arrangements for the disposal of radioactive waste. In Scotland the Act is enforced by the Scottish Development Department's Industrial Pollution Inspectorate.

200. In England and Wales, the Alkali etc. Works Regulation Act 1906 is administered by the Department of the Environment. The first alkali inspector was appointed in 1863. There are now 36 inspectors spread over London headquarters and 12 district offices. Until 1956 the inspectorate's operations were concerned with the emission of dangerous gases and fumes from the heavy chemical and related industries. The Clean Air Act of 1956 extended their interest to the suppression of smoke, grit and dust, and the Alkali, etc. Works Order of 1958 greatly extended the classes of work for which they are responsible. In Scotland, similar provisions are enforced by the Scottish Development Department's Industrial Pollution Inspectorate.

Present patterns of inspection work

201. Between them the inspectorates undertake a very wide variety of activities. Inspectors at various levels assist in the framing and revision of legislation; undertake investigations, surveys and research; participate in the preparation of advisory literature; liaise with manufacturers of plant and equipment; sit on various kinds of technical committees; deliver lectures; and participate in conferences at home and overseas. But the main day-to-day activity of the majority of inspectors is the inspection of workplaces.

202. The Factory Inspectorate aims to carry out a general inspection of each workplace within scope of the Factories Act at least once in every four years. Additional visits are made to follow up deficiencies revealed by general inspections, to investigate accidents or complaints, or to examine special problems. A somewhat similar approach is adopted in the case of those premises for which the inspectorate is responsible under the OSRP Act. The Mines and Quarries Inspectorate also works on the principle of regular visits, but to a very much higher frequency rate. Some mines are visited as often as once a week. Safety inspections of farms where workpeople are employed

The inspectorates

are carried out by field officers at least once every four years, with follow-up visits when necessary. The field officers also keep an eye on safety matters when visiting farms for other purposes. The Explosives Inspectorate visits explosive factories about once a year, and licensed magazines every two years. Smaller explosive stores are visited less frequently. Most nuclear installations (other than those of government departments and of the UKAEA) are visited every month by nuclear installations inspectors. The frequency of visits by alkali inspectors varies according to the nature of the problem. A relatively innocuous works might be visited twice a year; others might be visited every six weeks or so.

Support facilities

203. All of the inspectorates have or make use of various types of research and technical support facilities. There are close links between the Mines Inspectorate and the Safety in Mines Research Establishment, which has laboratories at Sheffield and at Buxton. Now under the control of the Department of Trade and Industry, the SMRE has about 400 staff, of whom some 250 are scientific and technical personnel. Its research programme is kept under review by a Safety in Mines Research Advisory Board, appointed to advise the Secretary of State for Trade and Industry on the scope, organisation and progress of research into safety in mines. Similarly, the Explosives Inspectorate is supported by the Home Office branch of the Royal Armament Research and Development Establishment at Woolwich. The safety inspectorates for agriculture have contacts with the National Institute of Agricultural Engineering. Research and development in the field of nuclear reactor safety is undertaken by the UKAEA and the Central Electricity Generating Board, and the Nuclear Installations Inspectorate has made use of the services of the SMRE, the Building Research Station and universities. The Laboratory of the Government Chemist (about 400 staff) undertakes investigations for a number of inspectorates including the Alkali and Clean Air Inspectorate, the Radiochemical Inspectorate and the Factory Inspectorate. The Factory Inspectorate has its own Industrial Hygiene Unit (over 60 staff) which in 1971 carried out over 14,500 tests of toxic substances in working environments, and has recently been strengthened by the addition of a mobile laboratory. Medical research and investigations are undertaken for the Factory Inspectorate in the Department of Employment's medical laboratories.

A unified inspectorate

204. Our proposals in chapter 4 imply the creation of a unified inspectorate within the new Authority for Safety and Health at Work. In practice there is no sharp dividing line between the work of administrators concerned with formulating safety policy and legislation, and the day-to-day duties of inspection and enforcement. Much of the work of the senior personnel of the inspectorates can properly be described as administrative in the sense of contributing to the development and modification of existing policy in the light of practical experience. Some of the work of the specialist inspectorate personnel at headquarters is concerned with advising on the technical content of legislation. There would therefore be little logic in any organisational separation between general administration and the inspection services.

205. As we have pointed out in chapters 1 and 4, there are very strong arguments for the creation of a single safety and health inspectorate as a matter of operational efficiency. A single inspectorate would bring together into a common pool the technical expertise which, although often concerned with similar types of problem, is at present dispersed between a number of separate organisations. Explosives inspectors deal with certain types of problem that also concern the mines inspectors and the chemical branch of the Factory Inspectorate. In the case of emissions of airborne contaminants, factory inspectors and alkali inspectors are often dealing with different but related aspects of the same problem. And so on. Unification would make for better co-ordination and use of the existing scientific and technical support facilities which are similarly dispersed and compartmentalised. It would facilitate the more economic provision of common services. Most of all unification would create the conditions for a more efficient deployment of inspection resources within a comprehensive framework of operational objectives and priorities spanning the whole field of safety and health at work. Visits, investigations, surveys and research could be planned as part of a properly co-ordinated advisory and research programme. Furthermore, there would be one comprehensive body of expertise to which employers, trade unions and others would be able to turn for advice. For these reasons we recommend, in the context of the discussion and proposals in chapter 4, that the existing inspectorates for factories, mines, agriculture (full-time—see paragraph 225), explosives, nuclear installations and alkali works should be merged to form a single inspectorate.

The basic task of a unified inspectorate

206. Much discussion about the structure and organisation of the inspectorates, their patterns of work, and the recruitment and training of the inspection personnel is vitiated by failure to clarify the primary question of their role and function. What do the inspectors do? More importantly, what should they do, and how should they do it?

207. During our Inquiry these questions elicited a wide variety of responses, within the inspectorates and elsewhere. At the risk of over-simplification, the responses can be described as falling into two broad categories. On the one hand the responsible government departments and inspectorates tended in their evidence to describe their primary function in terms of improving standards of safety and health at work, rather than in terms of law enforcement as such. Whilst inspectors regard the threat of legal sanctions in the background as important, in practice they find that in most cases advice and persuasion achieve more than duress. They have learned from experience that recourse to legal sanctions is only one means of achieving the objectives of safety legislation, and that it is rarely the most apt or the most effective. Some interesting insights into the way this approach works in practice, and a valuable picture of how inspectors in the field perceive their role, are provided by two reports which discuss the results of two independent field studies concerning the enforcement activities of the Factory Inspectorate.*

* These studies are discussed in Law Commission Working Paper No. 30—*Strict Liability and the Enforcement of the Factories Act 1961*, published in June 1970; and in an article published in the October 1970 issue of the *British Journal of Criminology*—*White Collar Crime and the Enforcement of Factory Legislation* by W. G. Carson of London University.

208. On the other hand, some submissions urged us to recommend that inspectors should pursue a policy of rigorous enforcement, utilising the sanctions of the law widely and to the full. This is an argument which seems to us misconceived. Even if it were feasible, it would be generally inappropriate and undesirable, for the reasons we discuss in our chapter on sanctions (chapter 9). But in any case it is not feasible. There are far too many workplaces, and far too many regulations applying to them, for anyone to contemplate anything in the nature of continuous official supervision and rigorous enforcement. The point was well put by the Chief Inspector of Factories in his Annual Report for 1969 (Cmnd 4461).

'It is no more thinkable that there should be so many Inspectors that one could be permanently stationed in every works than that, say, every fifth motor car should be a police car to enforce the Road Traffic Acts • .

my view better compliance for most of the time can be secured in most premises if one persuades the occupier of the need for compliance as a matter of good practice, rather than to avoid conflict with the law.'

This is by no means a novel view. As long ago as 1911 an official Report stressed that the main scope for progress in safety and health at work lay in developing and strengthening positive co-operation between factory inspectors and employers.* Further back, the first alkali inspector was writing in the 1870's about the importance of providing constructive advice and encouraging the concept of industrial self-regulation. t

209. When all is said, a lot of uncertainty remains. The government departments and inspectorates talk about enforcement, about compliance, and about the provision of advice and assistance with varying degrees or consistency. For example, we have noted some degree of inconsistency in choice of words between the general tenor of departmental submissions to us (see paragraph 207) and official pronouncements which have been made from time to time. Thus in the debate on the Employed Persons (Health and Safety) Bill in March 1970, a Government spokesman said of the Factory Inspectorate that 'although the Inspectorate gives very much advice, its primary duty is the enforcement of legislation'.

210. What are the reasons for the lack of clarity about the precise role of the inspectorates? Part of the explanation lies in history. Originally conceived as law-enforcement agencies, the style and nature of the activities of the inspectorates have changed over time as the scope of their work has grown in volume and complexity, and as society's ideas and expectations about authority and behaviour have changed. This process appears to have taken place for the most part naturally and without deliberate decisions of policy. It is probably true to say that the administering departments have been more preoccupied with day-to-day questions of organisation and procedure than conscious of any need to make explicit decisions about fundamental objectives. This fudging of basic policy remains a source of uncertainty, and an impediment to the full development of a broader and more positive role for the inspectorates. The inspectors need to know clearly what is expected of

* *Report of the Departmental Committee on Accidents in places under the Factory and Workshop Acts.* Cd 5535 HMSO 1911.

t See *One Hundredth Annual Report on Alkali etc. Works by the Chief Inspectors.* •1v180, 1964.

t Hansard Vol. 797 Col. 156, 2nd March 1970.

them. Another impediment is the limited and restrictive nature of the legislative framework within which most of the inspectorates work, and here the changes we have recommended in chapter 5 are relevant. Another is the unconstructive nature of the main sanction at present available to the inspectors, and we make recommendations about this in chapter 9. Our proposals in these two chapters would create the conditions in which inspectors would be able to exercise their judgement and initiative in a broader and more constructive role.

211. What should this role be? It is not enough to think in terms of 'ensuring compliance' with minimum legal requirements. Whatever the means adopted, this concept is too narrow and restrictive. Inspectors should seek to raise standards above the minimum levels required by law. They should advise on better organisation. They should be concerned with the broad aspects of safety and health organisation at the workplaces they visit, as much as with those narrow aspects which may have been made the subject of detailed statutory regulations. We believe that, as a matter of explicit policy, the provision of skilled and impartial advice and assistance should be the leading edge of the activities of the unified inspectorate. We do not mean by this that the inspectorate should attempt to provide services which employers can and should provide or pay for themselves. Nevertheless, we think that there is considerable scope, even within limited resources, for the development of high-quality advisory and consultancy services that would utilise and apply the great store of experience and expertise that has been built up within the inspectorates.

212. We believe that there is great scope for experiment with new types of inspection such as safety audits in depth, and team visits. There is also scope for closer contacts with manufacturers in connection with the planning and design of new premises, plant and equipment; and for closer liaison with the senior managements of very large industrial and commercial organisations. There may also be scope for closer integration of safety and health inspection with other industrial advisory work. We have in mind in particular the work of the Department of Employment's Conciliation and Advisory Service, officers of which advise individual employers on manpower and industrial relations matters. In the field of management planning and organisation, manpower advisers and safety advisers have a common area of interest.

213. In the development of new approaches to inspection work we attach very great importance to more contacts and co-operation between inspectors and workpeople and their representatives. It should be as natural for inspectors to discuss safety and health problems with workpeople and their representatives as it is to discuss them with management. Sometimes it might be helpful to have joint discussions between inspectors, management and employee representatives. None of this seems to happen widely at present. We are convinced that more contact and dialogue between inspectors and workpeople would not only greatly assist the inspectors in their day-to-day work, but would also make an invaluable contribution towards increasing the involvement of workpeople in the fight against safety and health hazards.

214. We see no real difficulty in practice in reconciling the inspector's advisory role with the need at times to exert the pressure of sanctions, a

subject that we discuss in more detail in chapter 9. Some submissions to the Committee advocated the creation of two separate organisations, one concerned with the provision of advice and the other concerned solely with enforcing the law. We regard this as neither desirable nor practicable.

215. To sum up, we recommend:—

- (a) That the new inspectorate should be geared to an explicit policy which has as its prime objective the prevention of accidents and ill-health and the promotion of progressively better standards at work through the provision of information and skilled advice to industry and commerce.
- (b) That the provision of advice, and the enforcement of sanctions where necessary, should continue to be regarded as two inseparable elements of inspection work.

216. We believe that a clarification of policy on these lines, and with it the development of a more constructive role for the inspectors, is an essential concomitant of the major theme of this report—the need to encourage industry to accept increasing responsibility for self-inspection and self-regulation. The primary objectives of the inspection services should be first, to support this development; and secondly to concentrate regulatory activity more selectively on serious problems.

Planning the work of the inspectors

217. It is vital that the skilled resources of a unified inspectorate should be used imaginatively, and with proper regard for cost-effectiveness. Day-to-day inspection work as currently organised has a tendency to fall into set routines which may not always correspond with changing needs. As we have seen, most of the larger inspectorates base their main programmes of activity on cyclical patterns of routine visits. In his Annual Report for 1969 the Chief Inspector of Factories described this process as one of 'dipping into each establishment from time to time to see what is going wrong'. This approach may have had more merit in the past than it has today.

218. Our strong impression is that routine visits tend to be brief, superficial and usually unproductive. In particular, we think that periodical routine visits by highly qualified inspectors to very small firms employing no more than a handful of people, often engaged in processes where hazards are minimal, is a misuse of skilled manpower. This is not to say that there may not be serious safety and health problems in some small establishments. Indeed, it is just as much a misuse of manpower to spend a lot of time at a large establishment that is very well organised and maintains high safety and health standards. Our point is that the resources of the inspectorate must be used selectively. They should be concentrated on priorities and problems that have been identified through the systematic assessment of all the available data—general technical information, local knowledge, statistics of accidents and so on. Obvious though the point may appear, we found in the major inspectorates less evidence than we had expected of serious and sustained priority planning based on the systematic appraisal of data. The preference for set patterns of regular inspection has tended to dominate thinking and to pre-empt resources that could be put to more efficient use. In recent years there has been some movement in the direction of a more selective approach. This movement needs to be developed and speeded up.

219. Inspection programmes should be oriented towards problems rather than based on periodical visits of a general character. This would mean that some workplaces would be visited less frequently than at present. We think this is right. To the extent that a general 'watchdog' role is necessary, occasional spot checks would be just as effective as a comprehensive programme of periodical visits. Over a large part of the field the main emphasis should be on self-inspection by employers, in co-operation with employees and their representatives. The activities of the inspectorates should be supplementary, and should be directed towards those problem areas where they are most needed and where they are likely to be most productive. At present the efforts of the inspectorates are dispersed too widely, and the attempt to watch over everything means that the more serious problems and situations may get less attention than they deserve. We now turn to the kind of organisation and structure best suited to a problem-oriented approach.

The structure and organisation of a unified inspectorate within the new Authority

220. We have described in chapter 4 the nature, status, scope and functions of a national Authority for Safety and Health at Work, its relations with government, and the composition of its Managing Board. The Board would control the operations of a unified inspectorate,. This means much more than bringing the existing inspectorates together in more or less their present form but under single management. The ultimate aim should be to achieve thorough-going integration at all levels, within an entirely new organisational structure. Clearly there will be much specialisation within the new service, but there should be no organisational impediment to the flexible allocation of personnel or to the efficient co-ordination of activities. It is not for us to work out a detailed organisational structure, but we put forward in the following paragraphs a number of broad suggestions about organisation at headquarters and field levels. A tentative organisation chart is given at the end of this chapter. We deal separately, in chapter 8, with local authority inspection arrangements and how they should fit in with the central organisation.

221. At headquarters level there would be a number of major divisions. The Advisory and. Inspection Services Division would include special technical units and would be the main managing and supporting division for field operations. There would .be separate divisions concerned respectively with research (also linking up information, training and education) and with occupational medicine (see chapter 12); as well as general administration and legal divisions. We have two main comments on this outline.

222. First, we attach considerable importance to the organisation of a separate multi-disciplinary research and development division. As we have seen, supporting research facilities and units are at present unevenly distributed, and we have considerable doubts about the overall balance and strength of research activity undertaken by or on behalf of the various inspectorates. The Research Division's span of control could include the Safety in Mines Research Establishment, the Factory Inspectorate's Accident Prevention Studies Unit, and statistics and economics units. It should seek not only closer integration of internal R & D activity, but also more effective links with relevant external research. The Research Division should also be responsible

for the major task of effectively disseminating, both internally and externally, the information derived from surveys, field studies, special investigations and laboratory research carried out within the inspectorate. The subject of research is discussed at greater length in chapter 14.

223. Secondly, we attach great importance to the development of an effective structure of operational units in the field. In the larger inspectorates the field personnel are spread out too thinly over too many offices. At the same time, too many highly-qualified specialists are confined to their headquarters for too much of their time. The introduction of new inspection approaches and methods will require a new structure of operational units in the field. The units in the field should be large enough to comprise a wide range of specialisation and skills, and to have the status and authority to deal on the spot with large problems and large organisations. In our view this points to a basic pattern of some 30 or so large Area Offices, strategically located at the main centres of industry and commerce.

224. In staffing the new and larger field offices there would be much more scope for taking full account of the geographical distribution of industry, and for developing a 'team' approach. This already happens to some limited extent. The Factory Inspectorate has special cotton and woollen industry inspectors in Lancashire and Yorkshire, and we think there is room for extending this concept. For example, there could be motor manufacturing industry inspectors in the Midlands, potteries inspectors in north Staffordshire, and docks and chemicals inspectors for Merseyside and its immediate hinterland. We regard this type of deployment as essential as an organisational base for new inspection approaches, including safety audits in depth. The mix of personnel at each Area Office would depend mainly on the industrial character of the area and partly on geographical considerations. For example, some would have a greater concentration of mining or chemical inspectors than others. Not all types of expertise could be represented at each office, and inter-office arrangements would be needed to cater for this. Special support arrangements would be needed for offices covering outlying areas of the country where industry is sparse and the need for certain types of expertise may arise very infrequently. These manning arrangements would not be easy to work out, but in our view this flexible type of organisation is to be preferred to one where additional functional tiers are superimposed on the basic structure to provide for the distribution of certain categories of expert. Arguments can be adduced for interposing a tier of Regional Offices for management purposes, but we would hope that this could be dispensed with.

225. Special arrangements would be needed in agriculture. As we have seen, inspection of provisions for the safety and health of workers in agriculture presents problems of organisation arising from the fact that farming units are small, numerous and very widely scattered. We think that the new Authority should be responsible for administering farm safety legislation (see chapter 4) and that all full-time agricultural safety personnel should be brought within the unified inspectorate. The general run of safety supervision visits to farms should continue to be undertaken by the field officers of the Agriculture Departments, acting for this part of their work as agents of the Authority.

Recruitment and training

226. The proposals in this report would make greater demands upon the skill and professionalism of inspectors. Within the present inspectorates there are many highly qualified specialists in subjects such as chemical, mechanical, civil and electrical engineering. Many have an industrial background. Mines inspectors, for example, are normally required to have qualifications in mining engineering, and experience of mine management. In the general branch of the Factory Inspectorate the emphasis on technical qualifications is not so marked as in the smaller, specialised inspectorates. Most of the personnel are graduates but less than 60% graduated in a scientific or technical subject. It was suggested to us that academic qualifications in a relevant scientific or technological subject should be a prerequisite of entry to the inspectorates. Others urged that many more inspectors should be recruited from industry. We doubt whether this is a matter that can be usefully discussed very far at a theoretical level. The right mix of qualification, experience, and potential cannot be settled by some kind of predetermined formula. It is obvious that recruitment and training policies must be based on a systematic assessment of the detailed needs of the work, and regularly adjusted in the light of experience. We therefore limit ourselves to a few general observations.

227. The respect that the inspector commands depends in the first place upon his technical competence. In the new inspectorate, more specialisation will be needed. We do not think it reasonable today—if it ever was—to expect to find or train people to be all-purpose technical advisers. The Committee was struck by the range and complexity of knowledge required of the individual factory inspector today. He is expected to accept transfer from district to district and to be able to go into any factory in any part of the country and speak with authority. This is to expect too much of an individual inspector in an increasingly complex industrial society. Employers to whom we talked made it clear that they want to discuss safety problems with someone who is really familiar with the problems of their particular industries.

228. At the same time we feel that there is at present—within the Factory Inspectorate at least—too great a sense of rigid demarcation between 'professionals' and 'generalists'. We see specialisation as primarily a question of function rather than of formal qualification in the academic or narrow professional sense. Within the unified inspectorate, every inspector should be a 'specialist' of some kind. The general inspector should become less of a generalist. Increasing specialisation should be a basic objective of recruitment and training policies. But this is not the same thing as saying that every inspector necessarily needs to have high formal qualifications. The duties of the new inspectorate would span a wide range. At one end there would be a need for very highly qualified experts. At the other end of the scale there would be work demanding in-service training rather than academic or technical qualification. In between, experience and know-how would often be more important than any particular type of specific qualification. Overseas we saw examples of a three-grade service based on a categorisation of workplaces as technically simple, average or complex. Assistant inspectors were introduced into the Factory Inspectorate in 1965, and despite some initial doubts within

The inspectorates

the inspectorate they appear to have proved their value. There should therefore be a variety of grades within one service, and there should be no question of a rigid pattern of pre-entry qualification.

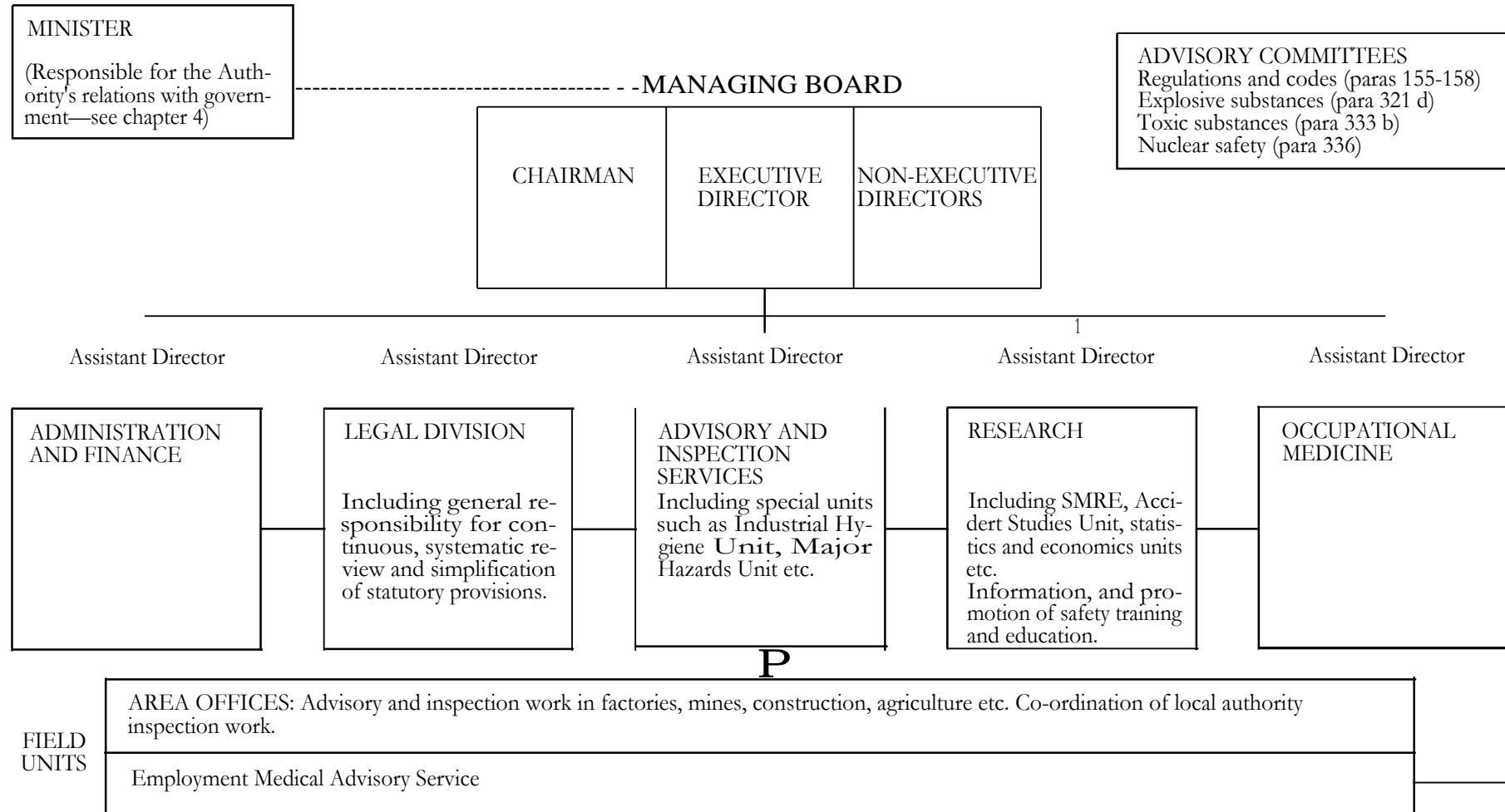
229. Insofar as the inspectorates have not always been able to get enough recruits of the requisite calibre to fill posts demanding specialist qualifications, we believe that the creation of a unified inspectorate will help. The improved career prospects and greater range of work should enhance the attractiveness of the profession and increase its capacity to recruit personnel of high calibre, whether from universities and technical colleges or from industry and commerce.

230. The development of higher levels of professional competence—in the broadest sense—is perhaps less a matter of recruitment than of in-service training and development. In the past there has been, at least in the larger inspectorates, a tendency to rely too much on 'learning on the job'. More time and attention has been devoted to systematic in-service training in recent years, but a greater effort will be needed in the future. Inspectors will need to know more about management techniques, and about modern disciplines such as industrial psychology and ergonomics. This will not come about unless adequate resources are devoted to training, including concentrated off-the-job training. For example, selected inspectors- might attend courses at the new Department of Safety and Hygiene at the University of Aston. Although it is still in its infancy, we see this new Department as providing a much-needed academic base for education and training in occupational health and safety as an identifiable discipline in its own right, and one that could be of great value in the higher training of inspectors.

The size of the inspectorate

231. We do not feel called upon to make any specific recommendations at this time about the size of the new inspectorate. We have framed our views in the context of the resources currently available, and we have asked ourselves how these resources might be more effectively used. Some of our proposals here and in other chapters would mean more work for inspectors, others less. The net effect can only emerge over a considerable period of time. In the immediate future the efficient reorganisation of a body of something like 1,000 inspection personnel would be a formidable task in itself, without the complication of any significant increase in numbers. At this stage we recommend changes in organisation and use rather than in size.

NATIONAL AUTHORITY FOR SAFETY AND HEALTH AT WORK



CHAPTER 8

INSPECTION BY LOCAL AUTHORITIES

232. At present, local authorities are responsible for inspecting the bulk of the offices and shops falling within scope of the Offices, Shops and Railway Premises Act 1963, and they have some responsibilities under the Factories Act 1961. Local authorities also undertake most of the work of licensing explosives stores and petroleum installations under the Explosives and Petroleum (Consolidation) Acts. There are over 1,600 local authorities with these enforcement responsibilities, and during the course of our Inquiry some disquiet was expressed about standards of performance.

Criticisms

233. There were two major and closely-related criticisms. First, it was frequently said that the general quality of local authority inspection is very uneven. Local authorities vary greatly in size and resources. In some cases safety and health enforcement duties are the full-time responsibility of an official such as a qualified public health inspector. In other cases these duties are performed on a part-time basis, sometimes by staff with little relevant expertise. The frequency of inspections made under the OSRP Act appears to vary considerably. Some local authorities have completed three or four rounds of inspections since the Act came into force in 1964. At the other extreme, a few local authorities have not yet completed their first round of inspections. As regards licensing under the Petroleum (Consolidation) Act, some large local authorities employ highly qualified experts. The smaller local authorities are seldom in a position to do so, yet some very large petroleum installations are to be found in the areas of small local authorities.

234. The second major criticism was that in interpreting the requirements of the statutory provisions, different local authorities adopt different standards. This criticism was made particularly by large retail organisations with branches spread throughout the country, and by manufacturers of machinery and equipment used in offices and shops. Manufacturers complained that production rationalisation was hampered because they had to modify equipment to meet different demands made by different local authorities. A somewhat similar situation exists in the case of the licensing of petroleum installations where, despite the Model Code of Principles provided by the Home Office, there are considerable variations in the number and type of licensing conditions imposed by different local authorities.

235. In putting these criticisms, some submissions made to us suggested that in order to raise the general quality of inspection in this field and to ensure uniformity in the standards applied, all enforcement duties under safety and health legislation should be the responsibility of the central government inspectorates. On the other hand, the local authority associations, and organisations representing local authority personnel engaged in safety and

health inspection, took the view that enforcement of all general health provisions—whether in offices, shops or factories—should be a matter for local authorities in view of their traditional interest in, and responsibility for, public health.

The role of the local authorities—relevant considerations

236. We think that this problem of unevenness in the quality of local authority inspection services and of lack of 'uniformity in the standards imposed by them on industry and commerce must be squarely faced. Before discussing ways of tackling the problem, it is necessary to set out some basic considerations.

237. First, there is no feasible alternative to some sharing of responsibilities in this field between central and local government. The provisions of the Offices, Shops and Railway Premises Act apply to over three-quarters of a million premises. Something like forty thousand installations are licensed under the Petroleum (Consolidation) Act 1928. Clearly, any idea that a central inspectorate should be responsible for visiting innumerable small shops, offices and petroleum filling stations throughout the country is quite impracticable.

238. Secondly, whatever the drawbacks there are some very considerable intrinsic advantages in inspection by local authorities. The Gowers Committee* recommended that local authorities should have the responsibility for enforcing safety and health legislation at offices and shops. They rejected the suggestion that it should be the responsibility of a central inspectorate because that would have meant more central government inspectors without any corresponding reduction in the numbers employed by local authorities. More generally, they considered that to transfer this area of responsibility to central government would mean a loss of local interest in a field where it was desirable to stimulate it. We think that the considerations which led the Gowers Committee to recommend that local authorities should be responsible for health and safety in offices and shops, as a logical extension of their traditional role in public health, remain valid. In local authority service there are many experienced and qualified engineers, surveyors, public health inspectors, shops inspectors, and so on who have to visit workplaces in connection with building regulations, food hygiene, sanitation, and public health generally. Supervision of provisions for the health and safety of workers in, non-industrial employment can often be logically and economically combined with some of these other responsibilities.

239. Thirdly, the forthcoming re-organisation of the structure of local government will greatly reduce the scope for lack of uniformity. Over the country as a whole the number of local authorities with responsibilities under the OSRP Act is likely to be reduced to about 400, and local authority responsibilities under the Explosives and Petroleum (Consolidation) Acts will be confined to less than 60 upper-tier authorities. These new larger authorities will dispose of greater resources of qualified manpower, and the work with which we are concerned will more often be undertaken as a full-time responsibility by qualified officials.

Report of the Committee of Enquiry on Health, Welfare and Safety in Non-Industrial Employment.
Cmd 7664, HMSO 1949.

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240. These considerations lead us to conclude that in future the local authorities should, if anything, have a greater rather than a lesser share of the work in this field. We think it would be unwise, however, to contemplate anything in the nature of radical changes during the forthcoming period of local authority reorganisation. Moreover, if local authorities are to carry on in this field and perhaps be given a greater share of the work in the future, we think that two essential reforms are needed. First, their work will have to be co-ordinated to common standards rather more than has been the case in the past. Secondly, the present distribution of duties as between the central and local authorities is in need of some adjustment and clarification. We now discuss these two matters in turn.

Co-ordination and integration

241. We have said that the problems of uneven performance and uneven standards must be squarely faced. The solution to these problems turns on the nature of the relationship between the local authorities and our proposed central Authority for Safety and Health at Work. It is necessary first, to look at the present statutory and administrative relationships between the central and local authorities, and we discuss these in terms of the OSRP Act. Section 52 of the Act appoints local authorities to enforce the provisions of the Act at certain premises within their areas. Section 57 of the Act contains 'provisions for securing discharge of local authorities' duties in uniform manner'. These give the Minister power to make regulations concerning the manner in which the local authority responsibilities should be discharged (a power which has never been exercised), and power to appoint officers to inquire, advise and report. Sections 61 and 62 of the Act contain default provisions whereby the Minister can, after an inquiry, transfer to himself the functions of an authority in default. (The default provisions are, of course, the bluntest of blunt instruments. They have never been used, nor is it easy to conceive of circumstances reaching the point at which they would have to be used.)

242. In practice, use of the provisions for supervision and control has been limited to the appointment of a Central Advisory Inspectorate within the Factory Inspectorate. At each of the 11 Divisional Offices of the Factory Inspectorate one inspector (two in Scotland) is responsible—as a part-time duty—for liaising with local authorities, for obtaining information about their work, and for providing them with advice and assistance. From time to time the Central Advisory Inspectorate has issued circulars giving detailed advice to local authorities--there are about 80 of these circulars in existence. However, in written evidence the Department of Employment said that 'it has always been made clear that the Central Advisory Inspectors act in an advisory capacity only, and do nothing to undermine the statutory independence of local authorities'. Our inquiries indicated that relations between the CAI and the local authorities are generally good, and it seems clear that this co-operative relationship has made a useful contribution towards the effort to ensure a satisfactory and reasonably uniform standard of enforcement in the local authority field. Nevertheless, the fact remains that local authorities do not always accept or follow the advice they are given by the CAI. We think it essential that in the implementation of provisions for safety and health at work there should be a reasonable degree of uniformity as between local authorities,

and as between the local authorities and the central Authority for Safety and Health at Work. Equally, local authorities should have ready access to the specialised services and facilities of the central Authority. There must be a mechanism for ensuring that all inspection services are adequately supported and operate to similar standards. We think that this can be achieved within the new framework that we have proposed (chapters 4-7), and that the approach adopted should be on the following lines.

243. First of all we think it is essential to avoid laying down detailed arrangements in rigid statutory form that would be difficult to modify subsequently in the light of experience. The arrangements should be flexible. We envisage that the new legislation should give the central Authority for Safety and Health at Work powers of supervision over local authority administration roughly along the lines of the existing provisions in the OSRP Act, but that new arrangements should be worked out for exercising these powers in a constructive way. The emphasis should be not on the latent threat of direct intervention from the centre, but on closer integration at local level resulting in the sort of working partnership that would ensure a greater degree of consistency and uniformity in the ordinary course of events. In chapter 7 we suggested that the central Authority's field structure should consist of some 30 or so large Area Offices. This is the crucial level for operational co-ordination and, as needs be, for a degree of practical supervision. What we have in mind is that the Manager of each Area Office should be responsible for co-ordinating the enforcement work of the local authorities in his area along the following lines :—

- (a) The Area Manager should be generally responsible for ensuring that local authorities in his area are adequately advised and assisted in the discharge of their duties.
- (b) At each Area Office one inspector should be engaged full-time in maintaining close contact with the operational activities of the local authority inspectors. He should, for example, participate in joint inspections where this would be helpful. He would be able to call on the services of experts to assist local authorities with special problems.
- (c) Representations from employers about differences in standards imposed by local authorities should be dealt with by the Area Manager in consultation with the local authorities concerned. Any matters which cannot be settled locally should be determined by the Managing Board of the central Authority (on which the local authorities would have a voice—see chapter 4).
- (d) Whilst the broad distribution of duties as between the central and local inspectorates would be determined centrally (see paragraphs 245-253) the Area Manager should be empowered to make adjustments—in consultation with the local authorities—in the allocation of any particular establishment or type of establishment, taking into account any special problems or local considerations that might exist. The need for this might arise, for example, where the broad central division of responsibility leaves the allocation of a particular establishment in some doubt, or creates some degree of overlap, or poses problems in relation to the expertise needed and available locally to deal with certain types of hazard. Again, any unresolved differences of view should be dealt with by the Managing Board of the central Authority.

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244. In this way, and without prejudice to the statutory independence of the local authorities, it should be possible to develop the work of the field officers of the central inspectorate and the work of the local authority inspectors as part of a more integrated service applying a common set of standards. Some local authorities might see in this a rather greater degree of supervision than they would like. We see it rather in terms of positive co-operation and practical accommodation. In practice we have no doubt that the Area Manager would seek to develop his relations with local authorities through his advisory function. It would be quite wrong for him to seek to dictate what a local authority should or should not do in the normal course of events. It is rather the case that the local authorities would be accepting, through the Area Manager as the representative of the central Authority, a proper degree of co-ordination based primarily upon closer support by the expertise of the central inspectorate. Ultimate responsibility for decisions on policies and standards would rest with the Managing Board of the central Authority which, as we have explained in chapter 4, would in its composition reflect all relevant interests.

Areas of responsibility

245. We believe that what we have recommended in the previous section should make the division of inspection responsibilities as between the central and local authorities a less contentious matter than it has sometimes been in the past. As we have tried to indicate, it is not a question of apportioning empires but of providing a co-ordinated and rational service. We take it as self-evident that the broad division of responsibility should be determined first, by reference to the nature of the safety and health problems arising in different types of employment and the nature of the expertise available in the central and local authority inspectorates; and secondly, by reference to the desirability of avoiding, so far as practicable, 'multiple inspection', of individual establishments. Broadly speaking the central inspectorates possess more expertise in industrial conditions and hazards whilst the local authority inspectors are experienced in dealing with questions of general health and amenity. We think, therefore, that the present broad division of responsibility whereby the central inspectorates concentrate on industrial employment and the local authorities concentrate on non-industrial employment is right. We suggest, however, that—subject to flexibility to allow for modifications and adjustments at area level—this broad criterion needs to be applied more consistently to reduce the number of cases where a particular establishment is inspected by both central and local authority inspectors.

246. We therefore recommend that so far as possible the main boundary line between central and local government administrative responsibilities should be drawn in such a way that any particular workplace falls either wholly within the purview of the central inspectorate, or wholly within the purview of the local authority. Generally, allocation should be determined by reference to the main activity of the establishment concerned. The central inspectorate should be responsible for *industrial employment*, and they should normally be responsible for the enforcement of *all* relevant provisions at predominantly industrial premises. (This would include, for example, inspection of sanitary conveniences at factories, which at present are separately inspected by district councils under section 8 of the Factories Act.) Local authorities

should be responsible for *employment at all non-industrial premises*. Any necessary adjustments in detail should be made at area level along the lines indicated in the previous section. In the interests of flexibility it is desirable that these general arrangements should be dealt with so far as possible as matters of policy and administration rather than as matters for detailed statutory prescription.

247. There is one particular respect in which the present broad division of responsibility should be applied more consistently. At present, local authorities are responsible for the enforcement of safety and health legislation at most offices and shops, but office and shop premises occupied by local authorities themselves or by the Crown are the responsibility of the Factory Inspectorate. We do not see any real need for this complication. No one would argue that there is any significant difference in technical content as between inspection of commercial offices and inspection of the general run of local authority and central government offices. We have looked at the reasons advanced for separate inspection arrangements, and we do not find them convincing.

248. As we understand it, central government enforcement of safety and health provisions affecting *local authority offices and shops* was considered to be necessary on the grounds that :—

- (a) so far as the day-to-day work of inspection is concerned, a local authority should not be a 'judge in its own court'; and
- (5) so far as legal enforcement is concerned, a local authority cannot enforce the law against itself and therefore separate enforcement arrangements are necessary.

As to (a), we need to be clear about the practical purpose of inspection. We have made it plain in this report that we regard inspection as primarily concerned with identifying problems and with advising and assisting those concerned to make improvements. We cannot see any reason why a local authority department responsible for safety and health inspection at commercial premises should be regarded as incapable of discharging this responsibility in relation to other departments of the same local authority, or to premises in its area occupied by other local authorities or government departments. Nor do we think that any major point of principle is involved, since there are, in fact, plenty of precedents for the element of 'self-inspection' that would be involved. Local authorities already enforce the provisions of food and drugs legislation, public health legislation and other legislation at their own premises; and Crown premises are at present 'self-inspected' by Crown officials. For example, the offices of the Department of Employment are inspected by the Department's Factory Inspectorate.

249. As to (b) above, we recognise that a local authority cannot enforce the law against itself in the sense of undertaking criminal proceedings, but the practical significance of the point is negligible. We do not for one moment believe that the possibility of legal proceedings being instituted against them by the central inspectorate is a significant factor in the attitude of responsible local authorities towards their obligations to ensure that their premises conform with the requirements of the OSRP Act. That *anomalous* arrangements should

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be made in order to preserve this possibility seems to us to conflict with common-sense and practical realities. We have only been able to discover one very exceptional case where the Factory Inspectorate has prosecuted a local authority under the OSRP Act.

250. *As regards Crown premises*, it has been suggested to us that inspection by local authorities is inappropriate for constitutional and for security reasons. We have some difficulty in following the first of these points. The Crown cannot, of course, be made liable for a criminal offence and consequently the question of legal enforcement does not arise. Nevertheless, administrative arrangements have been made for the inspection of Crown offices in order to monitor observance of the standards laid down in the OSRP Act, and the only practical question at issue is who should carry out such inspections. If local authorities have this duty in relation to non-industrial employment generally, we see no logical argument for excluding Crown offices from their purview, subject only to the limitations that apply in any event, viz. that there can be no question of enforcing the statutory provisions against the Crown, nor of inspecting Crown premises other than by administrative arrangement. On the security point, provision should be made to enable the Government to exempt and make special arrangements for establishments where security considerations arise. This would scarcely apply to the general run of government offices throughout the country.

251. To sum up, we recommend that in the case of non-industrial employment, administration of the statutory provisions should be the responsibility of the local authorities, subject only to the points mentioned above and to the arrangements discussed in paragraphs 241-244 for co-ordination under the Area Manager of the central Authority for Safety and Health at Work.

252. There remain two areas where special considerations arise, viz. educational establishments and hospitals. At present only small parts of these establishments fall within scope of occupational safety and health legislation, and in chapter 6 we have recommended that they should be fully within scope of the new comprehensive legislation. As employment in *hospitals* can be described as non-industrial there is a case for saying that hospital safety and health inspection should fall to the local authorities. We consider, however, that the range and type of hazards to be found in hospitals requires the application of expertise which is more likely to be found in the central inspectorate. As regards *educational establishments*, we think that there is a distinction to be drawn between, on the one hand, schools—mainly secondary—and higher educational establishments where laboratory and industrial equipment is used for instruction; and, on the other, those schools—mainly primary—where the matter is mainly one of ensuring adequate general health and environmental standards. We think that the former should fall within the responsibility of the central inspectorate and the latter within the responsibility of the local authorities.

253. The general approach we have described in this chapter should also apply to such matters as the co-ordination of local authority work under the Petroleum (Consolidation) Act. In paragraph 233 we mentioned doubts

about the licensing of very large petroleum installations by small local authorities. We deal with this subject more extensively in chapter 11, where we recommend that the Petroleum (Consolidation) Act should be revised and replaced by more comprehensive provisions dealing with dangerous substances, within the ambit of the main safety Act administered by the central Authority for Safety and Health at Work. We suggest in that chapter that some licensing controls will continue to be appropriate in this area, and local authorities will continue to have a part to play; but that the licensing of installations storing or using very large quantities of dangerous substances should be a matter for the central inspectorate. At the other end of the scale consideration could well be given to abolishing licensing in the case of very small petroleum storages. We also deal separately in chapter 11 with questions of responsibility for the enforcement of general fire provisions.

CHAPTER 9

SANCTIONS AND ENFORCEMENT

254. One of the basic themes of this report is that occupational safety and health law should seek to promote, as much as to control. We have suggested changes in the law and its administration designed to produce a framework for stimulating and encouraging self-regulation by industry and the exercise of individual and co-operative responsibility. We have looked for ways of reducing the negative influence of an excessively regulatory approach. Amongst other things we have suggested that the basic function of the state inspection services should be, and should be clearly seen to be, the provision of advice and assistance towards progressively better standards. At the same time it must be recognised that there will always be some who are indifferent to the demands of safety and to their obligations towards others. Flagrant offences call for the quick and effective application of the law. In what follows we are not arguing in favour of a generally milder, more tolerant approach but in favour of a much more discriminating and efficient approach—constructive where appropriate, rigorous where necessary.

255. It will be clear from what we have already said that any idea that standards generally should be rigorously enforced through the extensive use of legal sanctions is one that runs counter to our general philosophy. Our views on this are to a large degree shared by the various government departments and inspectorates who have enforcement responsibilities, as well as by some legal bodies and other interested organisations. In the submissions made to us there was a very considerable body of opinion to the effect that the sanctions of the criminal law have only a very limited role to play in improving standards of safety and health at work. We found that those who took the opposite view were unable to deal convincingly with the fundamental weakness of legal sanctions in this field—that the criminal courts are inevitably concerned more with events that have happened than with curing the underlying weaknesses that caused them. The main need is for better prevention. Technical problems of safety organisation and accident prevention are matters for experts in the industrial field, rather than for the courts.

The present position

256. Infringements of present statutory provisions for occupational safety and health can, according to circumstances, lead to imprisonment; to fines; to the issue of court orders; and in certain cases to the withdrawal of licences. We discuss court orders and licensing systems later in this chapter. We deal first with criminal proceedings leading to imprisonment or fines.

257. The statutes with which we are concerned provide for the treatment of infringements as criminal offences. Imprisonment is provided as a penalty for a limited range of offences, but in practice this penalty is hardly ever sought or imposed. This is no doubt partly because of the difficulty of distinguishing those cases where the appropriateness of the penalty of imprisonment would

be generally accepted; and partly because the nature of industrial and commercial organisation is such that it would be rare indeed to be able to establish the degree of direct and complete personal responsibility that would justify imprisonment. There are those who advocate that imprisonment should be available as a penalty for a much wider range of offences, but on a realistic view we do not think that this would be helpful (except in one important instance which is discussed in paragraph 276).

258. The conventional sanction in this field is prosecution in the criminal courts followed, on conviction, by the imposition of fines. Broadly speaking, present maximum fines range from £300 for certain offences under the Factories Act to £50 under the Acts dealing with safety in agriculture.* In practice, magistrates rarely impose the maximum fine. In 1970, for example, the average fine imposed for safety and health offences under the Factories Act was £40. Even the smallest firm is unlikely to find this onerous. The average level of fines actually imposed is influenced by the range that is available. In the evidence submitted to us the maximum levels of fine provided for in, the legislation were widely criticised as being derisory, and as leading to a situation in which magistrates frequently impose fines that appear to be little more than nominal.

259. Thus the process of prosecution and conviction more often than not results in a small fine. But what are the chances of an offender even being prosecuted? Table 5 shows the number of prosecutions undertaken in 1970. Even allowing for the considerable differences in the coverage of the various statutes, these figures strongly suggest that there are considerable variations in prosecution policies and activity as between one enforcing agency and another. More generally, it is also evident that despite the existence of voluminous legal requirements, only a very small proportion of offences ever lead to prosecution. On the evidence of these figures the Factory Inspectorate is the most active of the inspectorates in bringing prosecutions; and according to factory inspectors it is rare for any inspection visit not to reveal a number of breaches of the law for which criminal proceedings could be instituted. Nevertheless, some 300,000 visits made by factory inspectors in 1970 resulted in the prosecution of less than 3,000 offences.

260. The picture which emerges is, in many ways, a curious one. From the discussions we had it was obvious to us that many doubts exist within the inspectorates as to the value and efficacy of prosecution as a means of promoting acceptable standards of safety and health at work. It is fair to say that inspectors value the *threat* of possible prosecution as a potent sanction, and that they attach importance to the deterrent effect of the adverse local publicity which prosecutions frequently attract. Nevertheless, the weight of the 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?

* The Agriculture (Miscellaneous Provisions) Bill, currently before Parliament, provides for raising the maximum fines for offences under the Acts dealing with safety in agriculture.

261. The fact is—and we believe this to be widely recognised—that the traditional concepts of the criminal law are not readily applicable to the majority of infringements which arise under this type of legislation. Relatively few offences are clear-cut, few arise from reckless indifference to the possibility of causing injury, few can be laid without qualification at the door of a particular individual. The typical infringement or combination of infringements arises rather through carelessness, oversight, lack of knowledge or means, inadequate supervision or sheer inefficiency.. In such circumstances the process of prosecution and punishment by the criminal courts is largely an irrelevancy. The real need is for a constructive means of ensuring that practical improvements are made and preventive measures adopted. Whatever the value of the threat of prosecution, the actual process of prosecution makes little direct contribution towards this end. On the contrary, the laborious work of preparing prosecutions—and in the case of the Factory Inspectorate, of actually conducting them—consumes much valuable time which the inspectorates are naturally reluctant to devote to such little purpose. On the other side of the coin—and this is equally important—in those relatively rare cases where deterrent punishment is dearly called for, the penalties available fall far short of what might be expected to make any real impact, particularly on the larger firms.

262. Thus the traditional sanction of criminal proceedings falls between two stools. On the one hand the character of criminal proceedings is inappropriate to the majority of situations which arise, and the processes involved make little positive contribution towards the real objective of improving future standards and performance. On the other hand, the penalties available are too light to have any real impact in the minority of cases where exemplary punishment is called for. What is needed is an approach which recognises that different types of situation call for different types of remedy. The sanctions available should provide scope for distinguishing between situations where the accent should be on punishment, and the more frequent situations where the accent should be on constructive remedial action. The sort of thing we have in mind is to be found in the system followed in Ontario, where substantial financial penalties imposed on employers by the Workmen's Compensation Board are frequently suspended on condition that a specified programme of remedial action is undertaken. In the following paragraphs we make recommendations on the sanctions that we think should be available, and on their use.

The future use of criminal proceedings

263. We have said that criminal proceedings are inappropriate for the generality of offences that arise under safety and health at work legislation. 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. A corollary of this is that the maximum permissible fines should be considerably increased. It is not for us to indicate precise levels but we note, as an example, that a Bill introduced in 1971 in the States of Jersey provides for increasing the basic fine for a contravention of the Safeguarding of Workers (Jersey) Law 1956 from a maximum of £100 to a maximum of £1,000. We note, too, the recent tendency in this country

towards much higher penalties for pollution offences,* Magistrates rarely impose maximum fines, but raising the maximum permissible levels would undoubtedly lead to a rise in the average level of fine actually imposed.

264. We associate with this two further recommendations. First, provision should be made for the imposition of higher penalties in the case of repeated offences. Secondly, the fact that not only corporate bodies but also individuals such as directors, managers and operatives are liable to prosecution should be spelt out very clearly.

Administrative sanctions

265. Whilst criminal prosecution will remain appropriate in a minority of cases, and the penalties available should be strengthened accordingly, we believe that in future much greater reliance should be placed on non-judicial administrative techniques for ensuring compliance with minimum standards of safety and health at work. Where advice and persuasion fails and pressure is necessary, the pressure should be exerted in a form that is positive and constructive as well as quick and effective. For the most part, as we have argued, prosecution is none of these things.

266. Some closely circumscribed powers already exist for the issue of directions to employers. Under sections 68, 78 and 146 of the Mines and Quarries Act 1954 an inspector can, where there is immediate risk, issue forthwith a notice prohibiting or imposing conditions on the continued use of a process or part of a mine. Under section 157 of the Factories Act 1961 a court may, following a conviction for an infringement of the Act, issue an order for compliance with a particular provision or provisions. Under sections 54 and 55 of the Factories Act an inspector can, where he considers there is a risk of bodily injury, apply to the courts for an immediate prohibition or remedial order affecting the continued use of plant, machinery, process or premises.

267. In practice these powers are rarely used. For example, in 1970 four applications were made to magistrates under section 54 of the Factories Act and, eight under section 55. We attribute this reluctance largely to the fact that the powers are too narrowly circumscribed, and often too drastic to meet the needs of particular cases. Even where their application would be clearly appropriate, it would seem that lack of familiarity with these techniques has made inspectors very chary of using them. We quote an illustrative example. In a widely publicised civil action in 1970, a number of employees of an asbestos firm in London were awarded very substantial damages because of asbestosis. The Factory Inspectorate had visited the firm's premises many times between 1953 and 1968 (when the premises closed) and had successfully prosecuted the firm in 1964. However, despite the fact that unsatisfactory conditions were known to exist over a long period, it would appear that at no stage was action taken to seek a court order requiring rectification of the unsatisfactory conditions, or otherwise imposing restraints on the operations in question.

Under the Deposit of Poisonous Waste Act passed by Parliament in March 1972, maximum penalties on summary conviction are £400 and/or six months imprisonment. On conviction on Indictment the maximum penalties are an unlimited fine and/or 5 years imprisonment,

Sanctions and enforcement

268. Our view is that the existing powers concerning enforcement orders should be reorganised and strengthened so that inspectors are able, wherever necessary, to exert effective pressure to ensure the prompt rectification of unsatisfactory conditions and circumstances. Our recommendations are as follows.

Improvement Notices

269. We recommend that inspectors should have the power, without reference to the courts, to issue a formal Improvement Notice to an employer requiring him to remedy particular faults or to institute a specified programme of work within a stated time limit. A reasonable time—to be specified in the Notice—should be given for undertaking remedial action. The justification for, and merits of, the directions included in the Notice would be open to discussion and argument only on appeal—we discuss the appeals procedure in paragraphs 270-275. If the employer neither appeals successfully, nor complies with the requirements of the Notice within the time limit provided for remedial action, the case should be brought before the courts. We stress that the issue before the court at that stage should be confined to the question of whether or not the directions given in the Notice have been complied with. Unless compliance with the directions can be shown, the prescribed penalty should follow automatically. We think that an appropriate penalty would be a continuing daily fine for each day of non-compliance beyond the terminal date of the Notice.

Appeals against Notices

270. It is clear that if inspectors are to be given the power to issue Improvement Notices without first going through the courts, adequate rights of appeal must be ensured. There should be a right of appeal in all such cases, but to avoid deliberate delay the right should be one that has to be exercised quickly—say within a week. In other words, it should not be possible to wait until the end of the period allowed for remedial action before lodging an appeal.

271. When criminal proceedings are brought against an employer under the present Acts, the employer more often than not pleads guilty. Our proposals should result in fewer prosecutions and more 'Notice cases', and with this one might expect an increase in the number of cases where an inspector's judgement is challenged. We are inclined to doubt whether the increase would be likely to be very substantial, but in any event an increase in the number of occasions when alleged deficiencies are brought out into the open for informed discussion would be no bad thing.

272. A crucially important question is to determine where and how appeals should be heard. As a general principle we should like to see the technical aspects of safety issues divorced so far as may be practicable from any possible criminal aspects. A forum is needed in which debatable technical matters can be freely and fully considered without the constraints that attach to criminal proceedings. The appeal against Notice would provide the occasion for subjecting an inspector's views and judgement to constructive argument and

discussion about remedial action. Inspectors themselves—who naturally attach importance to the preservation of good working relationships with employers—would be less likely to feel inhibited about issuing Improvement Notices in appropriate circumstances if any challenge to them had to be discussed in the atmosphere of an expert administrative tribunal rather than in the atmosphere of a criminal court. Inspectors should be fully involved in such appeal proceedings. In contrast, any proceedings in the criminal courts should be handled by lawyers rather than by inspectors, unless sound practical arguments can be adduced against this.

273. We recommend, therefore, that appeals against the merits of Improvement Notices issued by inspectors should be heard not in the criminal courts but by industrial tribunals. We would hesitate to suggest the setting up of special tribunals for the purpose, unless this should turn out to be unavoidable. The existing network of industrial tribunals, which was set up under the Industrial Training Act 1964, is intended to provide the general blend of legal and industrial knowledge and expertise which we think is needed for dealing with appeals against safety and health directives issued by inspectors. What we are suggesting here would, in terms of caseload, constitute a relatively small addition to the present responsibilities of the tribunals.

274. We stress that the tribunals would not be concerned with enforcing compliance with Notices, nor with imposing penalties. Their sole task would be to consider the reasons and circumstances leading to the issue of the Notice and to confirm, reject or vary it. Non-compliance with a Notice confirmed by a tribunal would be a matter to be dealt with by the courts. The tribunals should be enabled to co-opt the services of independent expert assessors to assist in the consideration of scientific and technical problems in particular cases. We have in mind here scientists, technologists, medical specialists and so on from universities, research establishments and similar institutions.

275. There is a further point to which we attach great importance. In hearings before tribunals not only relevant statutory provisions but also any relevant approved codes of practice (see chapter 5) should be admissible in evidence (in the same way as the provisions of the Industrial Relations Code are admissible in evidence in proceedings before the industrial tribunals or the National Industrial Relations Court). In this way, approved non-statutory standards and codes of practice—which we have recommended should play a much larger part in the total system—would be given considerable force in particular instances.

Prohibition Notices

276. The Improvement Notice would be the inspector's main sanction. In addition, an alternative and stronger power should be available to the inspector for use where he considers the case for remedial action to be particularly serious. In such cases he should be able to issue a Prohibition Notice. The procedure would be the same as for Improvement Notices, with the important variation that the Notice itself would contain a direction that, in the event of non-compliance within the stated time limit, the use of specified plant, machinery, processes or premises must be discontinued, or continued only under specified conditions. Again, the merits of the directions in the Notice would be open to

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argument only on appeal, the procedure for which would be the same as in the case of Improvement Notices. Where necessary—that is to say in cases where there was neither a successful appeal nor compliance within the given time limit—application would be made to the courts for an order enforcing the Notice. The courts would normally be required to make such an order (unless compliance with the directions in the Notice could be shown). The court order would have the effect of prohibiting further use of the machinery, process, etc., and breach of the court order should render the offender liable to imprisonment.

277. We would expect that when issuing a Prohibition Notice it would normally be appropriate and practicable for the inspector to allow—as in the case of Improvement Notices—a reasonable period of time for remedial action, the prohibition becoming effective only if the remedial action is not taken during the time allowed. It would, however, also be necessary to provide for those relatively rare cases where there might be justification for an immediate prohibition (carefully qualified provisions for this already exist in mining and explosives legislation). Where, in the judgement of the inspector, there is a situation of imminent danger calling for very urgent action, the inspector should have the power to issue a Prohibition Notice specifying that the prohibition is effective forthwith. In such circumstances the normal appeal procedure which we have described would be inapplicable. Instead it should be open to the employer, if he wishes, to make immediate application to a court for revocation or variation of the Notice; but the prohibition contained in the Notice should remain effective pending the result of such an application. The statutory provisions should, of course, carefully define the circumstances which would justify the use of this 'Immediate stop' procedure.

The application of administrative sanctions

278. Powers on the lines we have indicated would make available to inspectors a range of methods of action to meet different circumstances. In particular it would provide a main method of enforcement which would not often need to be used, but which when used should be both more effective and more constructive than present procedures. The issue by an inspector of an Improvement or conditional Prohibition Notice would be a constructive measure. It would tell an employer quite clearly where he stood. At the same time it would provide him with both an opportunity to put things right and guidance on how to do it. The ultimate threat of daily fines or restraints on operations would be sufficiently powerful to ensure that Notices would not be treated with indifference.

279. It may be objected that inspectors would be no more likely to make use of these flexible powers than of the very limited powers of this type that they already possess. The issue of Notices would call for judgement and initiative, and there could well be some initial hesitation about using these procedures. We have no doubt that inspectors would overcome this, given a clear policy in the matter and adequate training. In many respects what we recommend would not be so very different in practice from the way inspectors tend to operate at present when faced with an unsatisfactory situation. They warn, indicate what should be done, follow up, and may eventually prosecute if remedial action is not taken. The trouble at present is that the stages of this

ad hoc procedure are insufficiently clear to those concerned. The steps leading eventually to prosecution are not sufficiently distinguishable at the outset from what happens in less serious cases, and are unlikely to be widely perceived within industry as part of a process which will inevitably culminate in the imposition of a substantial penalty unless something is done. Under the procedure that we recommend, an offending employer would be left in no doubt. He would have the choice of doing what was required of him, or of challenging the inspector's judgement before a tribunal. Simply to do nothing would not be an attractive alternative.

Licensing

280. Licensing systems provide enforcing authorities with a powerful sanction. Conditions of licence can be imposed, with various penalties for non-observance. These can include withdrawal or non-renewal of the licence (although oddly enough there is no provision in the Explosives Acts for withdrawal of the permanent licences issued for explosives factories and magazines). At present the licensing of occupiers of premises or sites is the main method of enforcing the safety and health requirements of the Explosives Act 1875, the Petroleum (Consolidation) Act 1928 and the Nuclear Installations Act 1965. Under the Explosives Act, licences control such matters as the layout and construction of premises used for the manufacture or storage of explosives, as well as the processes of manufacture. Under the Petroleum (Consolidation) Act all premises where petroleum spirit and certain other substances are kept must be licensed by the local authority. Under the Nuclear Installations Act, licensing powers enable the Minister to impose and supervise controls over the design, construction and operation of every nuclear installation within scope of the Act. The Mines and Quarries Act provides in effect for the licensing of particular personnel by specifying the qualifications they must possess. Managers, under-managers, surveyors and other officials and technicians must hold statutory certificates issued by the Minister on the advice of the Mining Qualifications Board.

281. Many of those submitting evidence to us suggested a considerable extension of licensing to a wide variety of premises, processes and individuals. For example, some urged that all works managers should be licensed to ensure that they possess minimum qualifications of knowledge and expertise in occupational safety and health. We do not regard this as a practical proposition. In the first place there is seldom much practical value in general licensing criteria applicable to a wide variety of circumstances. If they are to have real significance, licensing criteria must be related to needs and circumstances which can be closely defined. Secondly, the administration of licensing systems is expensive in manpower, and can easily become excessively bureaucratic when applied to large numbers of undertakings or individuals. Finally, too much reliance on licensing might tend to encourage the notion that the primary responsibility for exercising control lies with the licensing authorities rather than with those who create the risks.

282. Our view, then, is that whilst licensing provides a tight means of control and a powerful sanction against abuse, licensing systems should be

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used very selectively, We have in mind that the licensing approach should be adopted mainly for the control of high-hazard installations such as bulk storages of intrinsically dangerous chemicals; or for particularly hazardous activities such as demolition work. Together with this there may be some limited scope for more licensing of individual employees performing safety-sensitive jobs. We recommend, therefore, that the new legislation should provide powers enabling the introduction of regulations for the licensing of premises or processes dealing with particularly hazardous materials (as, for example, installations storing highly explosive substances) and for the prescription of qualifications for individuals who perform particular tasks (as, for example, crane drivers).

CHAPTER 10

PUBLIC SAFETY

283. Our terms of reference included a mandate 'to consider whether any further steps are required to safeguard members of the public from hazards, other than general environmental pollution, arising in connection with activities in industrial and commercial premises and construction sites'. This question interweaves with many other matters discussed throughout this report. For the sake of clarity it is considered here as a distinct issue in its own right, but some other chapters are relevant and in particular chapters 4, 6 and 11.

Occupational safety provisions and the public

284. There are many industrial circumstances that can give rise to hazards affecting the safety of the public as well as of employees. We give a number of examples in this chapter. Some such circumstances may be widespread, presenting frequent but usually relatively small-scale risks in terms of numbers that might be affected, at any one time. An obvious example is construction work adjacent to public thoroughfares. Others may present hazards of a potentially large-scale and dramatic character, and we discuss these in paragraphs 294 et seq. Whether large or small in scale, the point is that many hazards of industrial origin can have serious consequences for members of the public as well as employees. Despite this a noticeable feature of the main body of statutory provisions against occupational hazards is that they have the effect of drawing a somewhat artificial distinction between care for the safety of work-people and care for the safety of the general public. Unlike the Acts which deal specifically with explosives, petroleum and nuclear installations, the main occupational safety statutes covering factories, commercial premises, mines and quarries, and agriculture, are couched in terms of the safety of employed persons. In parallel with this there is an apparently long-established and deep-seated reluctance on the part of the administering departments and inspectorates to accept any explicit responsibility in relation to the safety of the public. It is as if there were some invisible ring-fence around the occupational safety system, with the general public left outside.

285. This general posture of the occupational safety legislation and its enforcing inspectorates has given rise to criticism in the past, and notably in some official reports. The Report of a public inquiry into a crane accident at Brent Cross, Hendon, in June 1964 (when the jib of a crane collapsed onto a passing motor coach, killing seven passengers) recommended that consideration should be given to amending the Factories Act so as to bring the public directly within its scope. Factory inspectors would then be able to administer the law with the public as well as employees in mind, and construction site safety officers could be given a direct duty to consider the safety of the public.* In the event, no action was taken on this recommendation.

* *Report of the Investigation of the Crane Accident at Brent Cross, Hendon on 20th June 1964*, paragraph 137. Cmnd 2768, HMSO 1965.

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286. The Aberfan Tribunal also made some relevant comments. Drawing attention to the limited responsibilities of the Mines Inspectorate in regard to the problem of controlling unstable colliery tips, it included in its recommendations a proposal to the effect that the Mines Inspectorate should be required to consider the safety, health and welfare of all persons in the vicinity of a mine, and that the Mines and Quarries Act 1954 should be amended to this effect.* It is interesting to note that the subject of tip control was subsequently dealt with separately in the Mines and Quarries (Tips) Act 1969. One effect of this was that the general commitment envisaged in this particular recommendation of the Tribunal was avoided.

287. The general line taken by the inspectorates is that, by and large, if occupational safety regulations are observed the public will automatically be protected. We do not find this entirely convincing. Clearly there can be industrial situations—as the preceding examples illustrate—where, in the nature of the situation or in terms of numbers potentially at risk, the safety of the public may be a substantial or even predominant consideration. It seems to us unsatisfactory that this should not be recognised and provided for in the main body of legislation dealing with safety and health at work, and in the manner of its administration and enforcement.

288. Here and there the interests of the public are already explicitly recognised in the legislation dealing with the safety and health of employees. For example, the OSRP Act 1963 is designed, as its long title indicates, 'for securing the health, safety and welfare of persons employed to work in office or shop premises . . .' but the provisions in section 28 of the Act dealing with means of escape in the case of fire very sensibly take account of the likely presence in such premises of members of the public. Or again, regulations have been made under the Agriculture (Safety, Health and Welfare Provisions) Act 1956 specifically for the protection of children on farms. But these are exceptions to the general run of the statutory provisions concerned with the safety and health of workpeople.

289. Two points seem to us to be matters of practical common sense. First, the statutory provisions regulating what happens at workplaces, whilst designed in the first instance for the protection of employees, should be so framed and administered as to enable full account to be taken of related public safety considerations wherever appropriate. Secondly, our proposed Authority for Safety and Health at Work should be able to deal with any matter that falls naturally within its technical competence, whether or not employed persons are involved. At present, peripheral cases crop up from time to time which cannot be readily dealt with because existing legislative arrangements are too inflexible. An obvious example here, and one which has frequently attracted public attention, is the case of the coin-operated launderette which has no employees on the premises. Some serious accidents have occurred at these establishments. They do not fall within scope of the controls of the OSRP Act, although that Act does apply to launderettes if persons are employed there; nor do they fall within scope of the Factories Act, which covers laundries. 'We were told of one

* *Report of the Tribunal appointed to inquire into the Disaster at Aberfan on October 21st 1966*, paragraph 295 (1). HL 316, HC 553, HMSO 1967.

case of a laundry where the factory inspector drew attention to a defective spin-dryer. The employer thereupon transferred it to a self-service launderette which he also owned. Subsequently the faulty equipment caused very serious injury to two children. The associations representing launderette owners have collaborated in the preparation of a comprehensive code covering all aspects of safety in launderettes; and the Home Office and Department of Employment have jointly produced a code of practice for the safety of coin-operated dry-cleaning installations. There may well, however, be a case here for statutory regulations. No such regulation can be made under the Factories or OSRP Acts because their scope is limited to premises where persons are employed. To take another example, storage installations where highly dangerous substances in common industrial use may be kept should not fall outside the province of the occupational safety Authority merely because they may not in the usual sense be places of employment. The test should be the source and nature of the technical problems posed, viewed in relation to the provisions made for dealing with such problems generally. We return to this point in paragraph 292 and in paragraphs 307-310.

290. Our conclusion is that the present orientation of the occupational safety legislation and its administration needs some modification to ensure that the public safety aspects of industrial hazards can be fully catered for. This re-orientation would need to take account of a number of distinct types of situation, including those where it is possible to foresee significant 'internal' involvement of the public (as, for example, in the case of department stores); those where the potential hazard is such that the interest of the 'external' public is self-evident (as, for example, in the case of industrial operations involving the large-scale use of explosive substances); and also those where the safety of employed persons may not be at issue (as in the case of self-service launderettes).

291. We recommend that new legislation (chapter 5) should give the Authority for Safety and Health at Work, through the responsible Minister, power to make statutory regulations not only about any matter affecting the safety and health of employed persons but also for the safeguarding of the general public where there is cause to believe that they are likely to be affected, by a particular industrial or commercial operation. Inspectors should, in the course of their normal activities, have both the power and the duty to pay due regard to the safety and health of the public.

The division of administrative responsibilities for public safety

292. Our recommendation above is designed to ensure that the Authority for Safety and Health at Work can and does deal with hazards which arise immediately from industrial and commercial activity and which lie within the technical competence of the Authority's personnel, whether the hazards affect workpeople, the public, or both. We wish to make it clear, however, that we are not suggesting that an all-embracing responsibility for public safety should be placed on the Authority. We can well understand the reluctance of the present occupational safety departments and inspectorates to be diverted from their traditional and primary interests by having to assume some wide-ranging and open-ended responsibility for public safety generally; and we would not

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propose this. The expertise of the occupational safety inspectorates must not be dissipated through involvement in a wide range of matters remote from their major concerns. What we are suggesting is a re-adjustment rather than a complete transformation of existing broad areas of responsibility.

293. Under our proposals the Home Office would lose its specific responsibilities for the Explosives and Petroleum (Consolidation) Acts, but it would of course retain its traditional responsibility for public order and safety generally including its responsibility for the fire and police services, for crowd control and so on. In most instances we do not think that it is unduly difficult in practice to distinguish such matters from those which fall more naturally within the technical competence of inspectors concerned with the safe operation of industrial processes. For example, we would regard the question of crowd control at sporting events as clearly a matter for the police and Home Office. There will inevitably be some circumstances and areas—general fire precautions, for example (see chapter 11)—where the responsibilities of the Home Office and those of the safety Authority will meet and, indeed, overlap. However, we think that a basic division of responsibility which makes operational sense is not difficult to discern and make, leaving borderline cases of doubt to be dealt with by mutual discussion and arrangement. This also applies in relation to the Department of the Environment and the local authorities, which would continue to exercise their important responsibilities under the Public Health Acts and similar legislation affecting the health and convenience of the public generally.

Large scale hazards and neighbourhood risks

294. What we have suggested in paragraph 291 is intended to deal with the general position. Within this, special attention must be given to the need to protect the public, as well as workers, from the very large-scale hazards which sometimes accompany modern industrial operations.

295. The storage and use in industry of a number of intrinsically dangerous substances with highly explosive, flammable or toxic properties, such as petroleum, the liquefied petroleum gases, liquid oxygen, chlorine, phosgene and sulphur dioxide constitutes a particular area in which significant risks can arise for the public as well as workpeople. A marked feature of industrial development over the last two decades has been the vastly increased scale on which such substances are used and stored. Our attention has been drawn to a number of locations in this country where highly explosive or flammable substances are kept in such quantities that any failure of control—however remote the possibility—could create situations of disaster-potential.*

296. Apprehension at this consequence of modern technology was expressed by the Chief Inspector of Factories in his Annual Report for 1967 (Cmnd 3745): 'The scale of modern manufacture has resulted in the storage and use of very large quantities, often measured in thousands of tons, of potentially

* At Feyzin in France, 15 people were killed and 70 injured in explosions which occurred when routine samples were being taken from a propane storage sphere. As a result of valve failure, a gas cloud spread to the highway 100 yards away, ignited (burning to death a passing motorist) and spread back causing a series of explosions involving four other spheres.

hazardous materials such as acrylonitrile, liquefied petroleum gas and liquid oxygen. Even the storage of an apparently harmless substance like flour in very large silos gives rise to a major hazard. The taking of precautions to prevent such adverse conditions arising, the provision of explosion reliefs to minimise the effects if ignition does take place, the siting of storages and discharge points to minimise danger, all cost money, often running into many thousands of pounds. The Inspectorate, and particularly members of the Chemical Branch, are constantly called on to give advice on such matters, advice which must be realistic, having regard to the often extreme remoteness of the risk, the scale of disaster which could ensue, and the cost of remedial measures.'

297. Situations of considerable potential risk to the public can be created in a variety of ways and circumstances. The potential risk may be created by an entirely new development, by a change of use or process in an existing establishment, or simply by an increase in the size and scale of existing operations. The area of risk may be fairly limited, or may extend to a whole neighbourhood. The problem can be particularly acute in sites or areas where there is a gradual accretion of potentially hazardous development by different employers. Existing technical problems may be compounded by new and possibly incompatible developments nearby, and administrative arrangements can become complicated because of the number of authorities that might become involved in one way or another. In such situations industrialists and officials no doubt apply their knowledge and discharge their responsibilities to the best of their abilities. Nevertheless, there have been expressions of public concern from time to time about the possibility that official controls may be inadequate or inadequately co-ordinated.*

298. It is self-evident that wherever the nature of an industrial establishment or operation is such that accidents could create significant danger beyond the confines of the workplace, it is desirable to try to preserve a cordon of safety between the potentially hazardous activity and nearby residential areas. This can be achieved by imposing conditions over use or development within the boundaries of the workplace or site (if statutory powers are applicable) and also by control over housing development. A combination of locally and centrally exercised powers of control exists, but too many disquieting incidents have happened to permit of any complacency about the degree to which the existing pattern of controls operates effectively to prevent the creation of neighbourhood risks. One vivid example was provided by a much publicised incident which happened during the period of this Inquiry. In September 1970 there was a fire in a built-up area of London at premises which were being used as a storage and distribution depot for liquefied gas containers. In the words of the Inspectors of Explosives, the result was that 'many of the containers were projected through the air for long distances with their contents burning, bombarding houses in the vicinity'. One newspaper report referred to 'a night which for many residents recalled the terror of the blitz'.

* See, for example, the Adjournment Debate on Fire Safety on Canvey Island, 24 November 1970, Hansard Vol. 807 Cols. 371 et seq., 25 November 1970; and the *Report on an Explosion in South Stifford Thurrock*, published in April 1969 by the Thurrock Urban District Council. According to the Council, Thurrock contains the largest concentration of oil storage depots in North-West Europe.

† *Report of HM Inspectors of Explosives for the year 1970*. HMSO 1971.

The relevance of development control powers

299. To some extent local authorities can seek to prevent the creation of neighbourhood risks by the exercise of their development control powers under town and country planning legislation. They can prevent, limit, or impose conditions over certain developments in certain circumstances.

300. From the point of view of public safety the value and efficacy of this machinery is limited in three main ways. First, by no means all developments require planning consent. Within certain limits, extensions or alterations can be made to existing buildings and plant without reference to the planning authorities. Moreover, many new processes can be introduced in existing premises provided that they fall within the same broad class as the original use. Thus dangerous storage capacities might be increased, a hazardous process might replace a harmless one, and a safe establishment might become potentially dangerous, all without the intervention of the planning authorities. Nor is the Factories Act a safety net here because—save for a very few exceptions—the introduction of new processes or the use of new substances (as distinct from a change in the occupancy of the premises does not have to be notified to the Factory Inspectorate.

301. Secondly, even where planning consent is required, by no means all local authorities possess the technical resources and knowledge that would enable them to identify those developments which should receive special attention from the point of view of public safety. The problem here is how to ensure that they are able to recognise cases where they should seek specialist advice, in relation both to a new development seen in isolation and to its compatibility with existing plant and processes in the area.

302. Thirdly, the willingness of a local authority to impose restrictions may be affected by its judgement of the economic needs of the area, as well as by other factors. As the Aberfan Tribunal aptly pointed out, a local authority may often beat a considerable disadvantage when dealing with a large industrial enterprise which might be expected to possess more technical expertise relevant to the problem in question, and on which much of the economic life of the community might depend.

303. For these reasons the development control arrangements are full of loopholes from a public safety point of view. This is not surprising. The planning machinery was not devised as a means of protecting the public against industrial hazards. Planning is concerned with general land-use considerations, and in the main proceeds on the basis that specific safety problems should be dealt with by specific legislation. However, although development control procedures cannot be made a main line of defence against industrial risks, we are in no doubt that they can and should be strengthened so as to make a more effective contribution to the protection of the public.

304. There are two main requirements here. First, local planning authorities should receive adequate general technical information and guidance to alert them about what to look for. Secondly, in particular cases which give rise to doubt they should seek expert advice. Some local authorities already make a

practice of seeking advice from bodies such as the Factory Inspectorate and the Alkali and Clean Air Inspectorate, but the extent to which this is done appears to vary widely. All too often the central safety inspectorates remain unaware of particular developments which turn out to be highly dangerous. Frequently they are brought into the picture only after expensive decisions have already been taken and implemented.

305. We believe that the arrangements for consultation between local planning authorities and safety inspectorates should not be left in their present somewhat nebulous state. They should be based on a clear and unequivocal requirement. We recommend, therefore, that in the exercise of their development control powers, local authorities should have an explicit duty to take account of the public safety implications of all applications for planning permission, and to consult the central Authority responsible for industrial safety in any case where they are in doubt.

306. As regards the provision of general technical information and guidance to local authorities, an important—and in our view overdue—step was taken early in 1972 with the issue of guidance, prepared by the Department of the Environment in consultation with the Factory Inspectorate, on the use of development controls in relation to certain industrial hazards.* This guidance provides a warning list of substances which, when stored in certain quantities, can have a very high danger potential. Local planning authorities are advised that the Factory Inspectorate should be consulted before granting planning permission for development which might involve the use or storage of such materials in excess of the quantities stated. We recommend that this approach should be further developed so as to provide local authorities with a comprehensive range of information and advice on the identification of potentially major hazards arising from industrial and commercial activities. More generally, it is clear that there must be regular collaboration between our proposed Authority for Safety and Health at Work and those responsible for land-use planning, in order to develop a co-ordinated approach to issues of common concern. For example, the problem of risk-situations arising from changes of use which do not require planning permission is one that needs further joint examination and attention, in conjunction with what we propose in paragraphs 307-310. So too does the general subject of new housing and other non-industrial development close to established industrial sites, a subject which was raised with us on a number of occasions (and which is touched on in the circular of guidance described above).

Direct and specific safety controls over dangerous substances and operations

307. We have said that arrangements should be made to strengthen the exercise of development controls by local authorities so that they make a more effective contribution to the protection of the public from industrial hazards. We have also said that these arrangements cannot be regarded as a main line of defence. For this we must look to specific controls exercised directly in the interests of public safety.

* Department of the Environment Circular 1/72: *Development involving the use or storage in bulk of hazardous material.*

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308. Industrial operations or materials with a significant potential for causing danger to the public should be controlled directly by specific provisions under the main body of legislation for safety and health at work. There is a particular need for a comprehensive regime of control from the centre over the manufacture, storage and use of intrinsically dangerous substances, and we discuss this separately and in more detail in chapter 11.

309. Direct and specific controlling provisions of the kind we describe in chapter 11—some of which would no doubt take the form of licensing—should be enforced by a special unit within the inspectorate of our proposed Authority for Safety and Health at Work. We envisage that this unit would be particularly concerned with large-scale risks involving explosive, flammable and toxic substances and, more generally, with all industrial situations with a potential for causing danger to the public on a large scale.

310. The nucleus of such a unit might be formed from personnel of the present Explosives Inspectorate of the Home Office and of the Chemical Branch of the factory Inspectorate. The unit would be concerned with the technical aspects of licensing controls in this area, and could also take responsibility for identifying problems such as areas of hazard accretion (see paragraph 10.1). Where a number of authorities might be involved and where a strong co-ordinating element is badly needed. This central corps of highly specialised experts would provide a focus of official knowledge and expertise, and we believe that it would develop considerable authority. It would be a body to which government departments, local authorities and industrialists could turn for reliable advice and assistance on major hazard problems.

CHAPTER 11

ADDITIONAL COMMENTS ON PARTICULAR TOPICS

I. Fire precautions

311. Death from fire is more common in the home than in industry. In recent years there have been between 600 and 800 deaths annually in this country as a result of fire. Home Office statistics for the years 1963 to 1967 show that 3.4% of these deaths were due to fire in industrial premises, as compared with just under 80% caused by fire in private dwellings. The two worst fire tragedies reportable under the Factories Act in the last two decades were the fire at a Keighley factory in 1956 when 8 people lost their lives, and the fire at a Glasgow factory in 1968 in which 22 people died. Whilst multiple deaths through fire have fortunately been rare in industry, the hazard is ever-present. Moreover the financial losses from fire damage to industrial and commercial premises, plant and equipment are a serious and increasing problem.

312. The functions and organisation of the fire service in Great Britain, and the relevant legislation dealing with fire precautions in all types of premises, were the subject of extensive study by the Holroyd Committee, 1967-1970.* We have thought it neither necessary nor desirable to go over the same ground in detail, particularly as we understand that discussions between the departments concerned, and also with the CBI and TUC, have been taking place about how certain recommendations of the Holroyd Report should be followed up. We confine ourselves to a brief description of the present position and some comments on the relationship between our general proposals and those recommendations in the Holroyd Report that fall directly within our own field of interest.

313. Statutory provisions concerning the prevention and control of fire at places of work are contained in several branches of legislation. The Building Regulations 1972 made under the Public Health Acts (in Scotland, the Building Standards (Scotland) (Consolidation) Regulations 1970 made under the Building (Scotland) Acts 1959 and 1970) contain provisions dealing inter alia with the safe design and structure of new or altered premises, including industrial premises. The provisions are enforced by the local building authorities. Local authorities also enforce the provisions of the Petroleum (Consolidation) Act 1928 which apply to the storage of petroleum spirit and some similar substances. Under the Factories Act 1961 and its supporting regulations there are two types of fire safety provision. First there are general provisions dealing with means of escape and such matters as fire alarms and fire-fighting equipment. Broadly, the position as regards enforcement is that means of escape certificates are issued by the fire authority, but other general provisions are matters for the Factory Inspectorate assisted as required by fire brigade personnel. Secondly, there are special provisions relating to the use of

* *Report of the Departmental Committee on the Fire Service*. Cmnd 4371, HMSO 1970.

Fire precautions

particular materials or processes with a significant fire risk. Thus section 31 of the Act lays down specific precautions aimed at preventing fire and explosion developing from dust, gas or vapour. Certain regulations under the Act such as those applying to chemical works, cellulose solutions and dry-cleaning include special requirements designed to prevent or control fire arising from the particular process. These special 'process provisions' are enforced by the factory inspectors. The OSRP Act 1963 also contains means of escape provisions and other general requirements (means of escape certificates are issued by the fire authority or the Factory Inspectorate depending upon the class of premises concerned), and there are powers under the Act to make special regulations to deal with particular substances or processes. The Mines and Quarries Act 1954 and the Explosives Act 1875 also contain special provisions relating to fire prevention.

314. A good deal of dissatisfaction was expressed in evidence about the scattered presentation of the statutory provisions relating to fire prevention at places of work. There was also strong criticism of the complex pattern of enforcement responsibilities involving local building authorities, fire authorities and occupational safety inspectorates, a pattern which sometimes gives rise to confusion. The Report of the public inquiry into the fire at Dudgeons Wharf commented on certain aspects of the administrative arrangements and included a recommendation that 'consideration ought to be given to clarifying, if not by statute then by discussion and agreement between the authorities concerned, the division of duties and responsibilities between the fire brigades and the Factory Inspectorate in relation to advice, inspection and supervision'.*

315.. In recommending rationalisation of the existing scatter of statutory provisions concerning fire precautions at all types of premises the Holroyd Committee took the view that it should be possible to consolidate existing provisions within two main branches of legislation, one applying to new and altered buildings and the other to premises once they had been occupied. First, the Building Regulations would deal with all requirements affecting the design and structure of new and altered buildings, including the provision of means of escape from fire. Secondly, there would be legislation dealing with fire precautions in occupied premises. A major step towards this objective was taken with the enactment of the Fire Precautions Act 1971. This Act strengthened and consolidated the law relating to fire precautions in places of public resort and entertainment and in certain kinds of residential premises. A central feature of the Act is that occupiers of such premises must obtain from the fire authority a certificate to the effect that means of escape are adequate. The certificate also deals with matters such as fire alarms and fire-fighting equipment. Each fire certificate specifies the use or uses of the premises to which it relates. Where a change of use is contemplated, the occupier must first notify the fire authority. The Act also provides powers for including in Building Regulations provisions concerning means of escape. We should like to see the scope of the Fire Precautions Act extended to cover all places of work. The effect of this would be that all premises in use, whether public or industrial, would be subject to one and the same legislative code

* *Report of the Public Inquiry into a Fire at Dudgeons Wharf*, paragraph 92 (3). Cmnd 4470, HMSO 1970.

dealing with general fire precautions, the enforcement of which would be based on the issue of fire, certificates by the fire authority. All general fire provisions—concerning means of escape, fire alarms, etc.—in premises used for industry and commerce would thus become unequivocally the responsibility of the fire authorities utilising, as recommended in the Holroyd Report, the expertise of the fire brigades.

316. It by no means follows from this that the inspectorate of the Authority for Safety and Health at Work would have no responsibilities in relation to fire prevention. We have seen that existing occupational safety legislation contains various provisions relating to the use in industry and commerce of particular materials and processes which entail significant fire risks. Expertise in the administration and enforcement of such provisions derives from technical knowledge of the materials and processes in question and of their potential hazards, including the risk of fire and explosion. All of this lies within the mainstream of the work of the occupational safety inspectorates, and in the new safety legislation that we propose (chapter 5) there would be powers to make additional fire regulations dealing with such 'process risks'. These regulations would be administered by the central safety inspectorate (in association with local authorities—see paragraphs 318 et seq.).

317. Obviously there is a borderline here where the concerns of the central safety inspectorate and those of the fire service would meet, and indeed overlap. We believe that the borderline as we have described it would be more straightforward than it is at present, and that this clarification of basic responsibilities would provide a better basis for the development of close co-operation and collaboration between the fire service and the central safety authority. We regard close collaboration between the two as of the utmost importance, both at national policy level and at the local operational level. The nature and patterns of industrial fire risk are constantly changing with the introduction of new types of installation, processes and materials. Liaison between safety inspectors and fire brigades would be particularly important where workplaces were subject to 'special risk' fire safety regulations in addition to the general fire certificate arrangements. There have been cases where difficulties have arisen because fire brigades were unaware that certain kinds of dangerous materials were in use at workplaces to which they were called. The first need, therefore, is for clear arrangements for the regular exchange of information between the safety inspectors and the fire brigades. At each Area Office of the Safety Authority (see chapter 7) there should be an inspector responsible for liaison with the fire service and for ensuring that relevant information is transmitted promptly to the local fire brigades.

H. Flammable and explosive substances

318. Elsewhere in this report we have suggested that the application of the traditional regulatory approach to safety and health at work tends to be too general and too indiscriminate. One advantage of the re-orientation we suggest would be that the resources of the inspectorates would be spread less thinly. There could be more concentration on problem areas where controls may well need to be tightened. In the chapter on public safety (chapter 10)

Flammable and explosive substances

we have recommended that there should be licensing or other direct controls over specified industrial and commercial installations and processes which present particularly significant hazards not only to workpeople but also to members of the public. A major source of such hazards is the extensive use in industry of substances which are intrinsically dangerous because of their highly flammable or explosive properties, and it is worth dwelling a little further on this subject. As we have already indicated, the main statutory provisions dealing with such substances are to be found partly in the Explosives and Petroleum (Consolidation) Acts, administered by the Home Office, and partly in the Factories Act and its supporting regulations, administered by the Department of Employment. Under the Explosives Act, conventional explosives may not be manufactured or stored except under licence. The Petroleum (Consolidation) Act imposes controls over the storage and conveyance of petroleum spirit and certain other substances. The Factories Act and its regulations contain provisions relating to the control of fire and explosion risks in certain manufacturing processes.

319. It is generally acknowledged that the pattern of controls thus provided is by no means satisfactory. The Explosives and Petroleum (Consolidation) Acts provide a tight regime of control over some intrinsically dangerous substances, but these provisions do not cover—and we were told that they cannot be readily extended to cover—a variety of explosive and flammable substances which are potentially as dangerous or more dangerous than those which are subject to strict licensing control. The action that can be taken under the Factories Act is limited by the scope of the Act. For example, the Act provides no powers for regulating conditions at storage depots or tank farms. Thus whilst regulations under the Act have recently been prepared for controlling the storage and use of highly flammable liquids, these will apply only to premises falling within scope of the present Act.

320. It is perhaps not surprising that during the course of the Inquiry many experts expressed concern about the inadequacies and loopholes in this field which are perpetuated by the piecemeal character of the legislation and of the administrative arrangements. The statutory arrangements have not kept pace with changes in the nature and scale of the relevant technologies. Thus whilst quite small factories manufacturing explosives are subject to close inspection by the Home Office's Explosives Inspectorate, huge petroleum installations may be licensed by very small local authorities which are unlikely to be able to recruit staff with the qualifications and expertise necessary for the effective discharge of such responsibilities. Particular concern was voiced at the absence of general statutory controls over the construction and siting of fixed storage vessels containing explosive and flammable substances, and over the construction and conveyance of transportable storage vessels. Efforts to plug this gap have been made by the Home Office's Standing Advisory Committee on Dangerous Substances (instituted in 1965), which has inter alia prepared a code of practice on the storage of liquefied petroleum gas in fixed installations, and is working on a code of practice dealing with transportable containers. However, steps to modernise the statutory provisions appear to be hampered by a jurisdictional log-jam. We have already mentioned (paragraph 39) that since 1968 an inter-departmental committee has

been reviewing the administrative machinery for controlling intrinsically dangerous substances. One of the problems appears to be that the Home Office cannot seek new and more comprehensive powers in this field without encroaching further and further into the territory of the Factory Inspectorate. Conversely, any additional measures taken under the Factories Act have to be harmonised with the separately administered legislation on explosives and petroleum.* In the present situation neither the Home Office nor the Department of Employment can introduce really comprehensive measures. In the meantime, the existing controls remain incomplete and unsatisfactory in a variety of ways.

321. The underlying difficulties here would be resolved by the adoption of our proposals for comprehensive safety legislation under single administration and enforcement.. This would make possible the development of a single, comprehensive regime of control over intrinsically flammable and explosive substances in industrial and commercial use, to be administered in the interests of the safety both of the public and of employees. So far as practicable this control should be exercised 'across the board', that is to say it should apply to the importation, manufacture, acquisition, use, storage and transport of such substances (although the last point is not within our terms of reference). We recommend, therefore, within the context of our general proposals in previous chapters, that :—

- (a) The Explosives Acts 1875 and 1923 and the Petroleum (Consolidation) Act 1928, as well as relevant provisions under the Factories Act and other occupational safety legislation, should be revised and replaced by comprehensive regulations dealing with the manufacture, storage and use in industry and commerce of intrinsically dangerous substances of a flammable or explosive nature. We envisage that these controls will frequently take the form of a system of licensing and inspection by the central authority, in association with 'upper-tier' local authorities. The division of duties between the central and local authorities should be determined by considerations of scale of risk and availability of the technical expertise needed for adequate inspection. The broad distribution of responsibilities should be determined centrally. Adjustments in detail should be settled by the Area Offices of the Authority for Safety and Health at Work (see chapter 8).
- (b) As indicated in paragraph 309, questions concerning controls over explosive and flammable substances should fall within the province of a specialised 'major hazards' unit of the central inspectorate.
- (c) Adequate powers should be provided in the main Act to enable the introduction of such, new, amended or additional regulations as may prove necessary in the light of technological developments. These should include powers to require prior approval for the introduction of new types of installation or operations involving intrinsically dangerous substances.

As an illustration of the inconsistencies that can develop, it has been pointed out to us that in the draft Highly Flammable Liquid Regulations (Department of Employment) the flash point criterion used is different from that used in the Petroleum (Consolidation) Act (Home Office).

Toxic substances

- (a') In the exercise of these powers the Authority for Safety and Health at Work should be advised by a standing Advisory Committee on Explosive and Flammable Substances (see paragraph 320). The proposals made would considerably widen the purview of the present Advisory Committee on Dangerous Substances, which is concerned primarily with considerations of public safety in relation to the transport and storage of dangerous substances. The Committee would need to be given a new and wider remit, and would no doubt need to, be reconstituted accordingly.

ICI. Toxic substances

322. Many toxic substances are present in working environments in the form of dusts (e.g. lead oxide), liquids (e.g. carbon disulphide) and gases (e.g. chlorine), -and can be absorbed into the body through the lungs, mouth or skin. We have already indicated (see chapter 1) that the submissions made during the course of this Inquiry revealed considerable anxiety about the potential consequences of the ever-increasing use in industry of potentially harmful chemical substances. We agree with the Chief Inspector of Factories, who in his Annual Report for 1970* wrote that: 'The proliferation of more subtle hazards, and particularly potential carcinogens, must also be the subject of continuous vigilance. Cancer-producing chemicals share with asbestos and other fibrogenic dusts a latent period before the disease is manifest. Any failure at the present time to bring these risks under control can only therefore be reaped as a bitter harvest, not by us but by the next generation'.

323. The control of hazards arising from the use of toxic materials in industry is essentially a matter for engineers and chemists. The profession of industrial hygiene, which sees environmental control as a new and distinct scientific discipline, independent of medicine, has now gained widespread acceptance. By far the most important aspect of environmental control in industry is the prevention of atmospheric pollution, a subject which in recent years has attracted rapidly growing public interest and attention. The pressures thus generated for control over industrial processes and new materials have focused attention on the need for the more precise measurement of atmospheric pollution and for a more sophisticated and professional approach to the application of control measures. At the same time, to the extent that modern industrial technology is increasingly based on the work of the chemist, the problems of toxic material in industry are likely to increase rather than diminish. All of this serves to underline the growing importance of the industrial hygienist in the promotion of safety and health at work.

324. Industrial hygienists are increasingly employed within industry as well as within the safety and health inspectorates in the work of measuring and controlling toxic contaminants in the working atmosphere. The rapid development of the Factory Inspectorate's Industrial Hygiene Unit since 1966 is an illustration of the increasing attention being paid to environmental monitoring. The Unit consists of four sections, two being concerned with systemic poisons, one with fibrogenic dusts and one with ionising radiations. It has extensive laboratory facilities including a mobile laboratory unit. The emphasis in this

* 1970 Annual Report of HM chief Inspector of Factories. Crand 4758, HMSO 1971.

field is now placed heavily on prevention through scientific assessment of the risks and precise quantification of preventive standards in the form of agreed maximum levels of exposure. In 1970 the Factory Inspectorate began the annual publication of a Technical Data Note setting out these 'threshold limit values' in relation to a wide variety of substances used in industry, as established by industrial hygienists in the USA.

325. The work of environmental hygienists in the control of toxic substances in industry must be firmly based on medical intelligence. Chemists, engineers and doctors are members of one team. Epidemiological research of the type undertaken under the auspices of the Medical Research Council to improve statistical information about the incidence of occupational disease has an important contribution to make. In this connection we have noted the strong representations made by the Medical Research Council and others about the potential value of a national system of linked medical records supplemented by details of work history. We do not regard this particular suggestion as falling directly within our terms of reference, but we commend it to the authorities concerned.

326. Whilst industrial hygiene has been making considerable strides as a scientific discipline in its own right, doubts have been expressed about the adequacy of the underpinning statutory controls over toxic substances in industry. Legal requirements dealing with atmospheric pollution within factories are contained in the Factories Act, section 63 of which requires that 'all practicable measures shall be taken to protect the persons employed against inhalation of the dust or fume or other impurity'. Special regulations made under the Act prohibit the use of some substances and control the circumstances in which certain materials such as asbestos, chromic acid and lead may be used in manufacturing processes. Relevant statutory provisions are also contained in other occupational safety legislation such as the Agriculture (Poisonous Substances) Act 1952, under which regulations have been made scheduling some 40 chemicals and laying down precautions to be observed in their use. The legislative controls are, however, by no means comprehensive. Many toxic substances used in many industrial circumstances are not directly regulated by statutory provision. Further, there is no adequate mechanism for co-ordinating relevant information from industry, the universities and bodies such as the Medical Research Council, and for linking this with the regulatory work of government departments.

327. It is worth mentioning at this point a number of control approaches in closely related fields. The Ministry of Agriculture, Fisheries and Food exercises close supervision over the supply and labelling of pesticides in agriculture, horticulture and forestry through the voluntary Pesticides Safety Precautions Scheme. Under this scheme manufacturers have undertaken, before marketing any new product, to notify the Ministry of Agriculture, Fisheries and Food and to provide sufficient data for a decision as to whether or not the pesticide can be safely used, and under what conditions. Before reaching a decision the Agriculture Departments can seek the advice of the Advisory Committee on Pesticides and other Toxic Chemicals, which has both official and independent members, under an independent chairman. Since 1957

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thousands of proprietary products, utilising some 400 chemical or other substances, have been vetted for safety under this scheme.* Regulations made under the Pharmacy and Poisons Act 1933, the Agriculture (Poisonous Substances) Act 1952 and the Farm and Garden Chemicals Act 1967 give mandatory support to parts of the voluntary scheme. In the field of drugs and medicines, the Committee on Safety of Drugs (the Dunlop Committee) was set up in 1963 to establish a voluntary system of control. This was followed by the Medicines Act 1968 under which the trial, testing, manufacture, marketing and importation of medicines for human and veterinary use may be undertaken only under licence from the Health and Agriculture Departments. The Act established the Medicines Commission to advise on general policy and to act as an appeal court in licensing disputes, and an expert Committee on Safety of Medicines to provide technical advice. The system covers the licensing of manufacturers and wholesalers as well as of individual products. The licensing arrangements became operative in 1971 and it is expected that some 1,200 to 1,500 new licence applications will be dealt with annually.

328. It is also worth noting overseas approaches to the control of toxic substances. In the USA the Occupational Safety and Health Act 1970 requires the appropriate government department to promulgate safe exposure standards, and provides powers for the making of regulations about labelling and other forms of warning, and for requiring employers to measure, record and make reports on exposure levels to which their employees are subject. The department must also publish an annual list containing information about all known toxic substances. The first such list, compiled by the National Institute for Occupational Safety and Health in Washington, contains information on the toxic effect of some 8,000 substances.^f In addition, Congress is considering introducing a new Toxic Substances Control Bill under which chemical manufacturers would be required to make annual reports to the Government providing details of the chemicals they have produced, including information about chemical formulae and molecular structure and about uses and by-products. Manufacturers of a new chemical would be required to obtain a certificate showing that it complied with test requirements. There would be a Toxic Substances Board to advise on the operation of these measures.

329. There is wide agreement on the need for careful safety and health precautions covering the use of toxic substances in industrial and commercial processes, and particularly on the importance of arrangements to ensure 'early warning' of new hazards. It was, however, apparent from the evidence submitted to us that considerable differences of opinion exist as to what is feasible in this connection. There were those, such as the Medical Research Council, who drew an analogy with the compulsory screening of new medicines and suggested the desirability of a similar approach to the control of toxic substances in industry. On the other hand, there were those who argued that the elaborate research and testing arrangements of the chemical manufacturers were the best guarantee of safety, and that official screening of all new toxic

* Hansard 20 April 1971 Vol 815 Col. 366-7.

^f *Toxic Substances Annual List 1971*. U.S. Department of Health, Education and Welfare, Washington D.C., 1971.

substances brought into industrial use would be neither feasible nor desirable. We think that the practicalities of the matter point to an approach lying somewhere between these two viewpoints. Large numbers of new substances are formulated in laboratories attached to academic, research and industrial establishments and it would be impracticable to try to exercise detailed central supervision over this activity. Nor is there any easy way of keeping track throughout industry generally of the use of toxic substances in new mixtures or in new applications and processes. On the other hand, the British Chemical Industry Safety Council told us that most new chemical substances originate within the chemical industry itself and that probably not more than about 30 or so annually proceed to use in an industrial process. Thus one very important segment of the total field is not so diverse as to preclude the possibility of some general early warning arrangements. We do not believe that a comprehensive licensing system would be workable, but we think that there is everything to be said for a comprehensive system of notification to an authoritative body as new substances are brought into use or offered for sale.

330. It is important that the new legislative and administrative arrangements that we discuss in chapters 4-6 should enable this particular subject to be dealt with comprehensively. We recommend that the new legislation should provide powers for the introduction of regulations to specify those toxic substances to be made subject to general precautions; to specify those substances which should not be used without prior approval; to prohibit the manufacture, use or import of particular toxic substances; and to impose requirements on employers concerning periodical atmospheric testing and sampling in atmospheres where toxic substances are used or may be present. Regulations or codes of practice should include requirements concerning labelling and instruction.* These powers would be on the lines of the ideas which have been developed in discussion between the Department of Employment, the CBI and the TUC following the publication in 1967 of the Department's First Consultative Document on proposed occupational safety and health legislation.^t These powers of regulation should be associated with a general statutory obligation on manufacturers to ensure by adequate research and testing that no new chemical or other potentially injurious substance is marketed for use in industrial and commercial processes unless it is safe in normal applications when recommended precautions are observed (this should be a primary general obligation, existing independently of any voluntary or statutory provision for central monitoring or screening).

331. There remains the problem of how to apply the best available expertise to the identification at the earliest possible stage of those substances and processes which should be subject to control through the powers we have recommended, and to the revision of the nature and content of the controls as necessary in the light of continuing technological development. Here we attach very great importance to the suggestion, also made in the discussions referred to in

* The question of safe custody should not be overlooked. We were given information about tragedies that had occurred after poisons had been improperly obtained from workplaces. At all workplaces there should be adequate security arrangements for the storage and issue of toxic substances.

^t See Appendix 3.

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the previous paragraph, that there should be an independent and expert standing Advisory Committee on Toxic Substances. This would be somewhat similar in concept to the Advisory Committee on Explosive and Flammable Substances (paragraph 321(*d*)). We believe that the creation of an authoritative body of this nature, responsible for giving expert advice on specific problems, on the establishment of authoritative threshold limit values, and on methods of measuring and control, would fill a vacuum in the present arrangements and would help to ensure that new toxic hazards are more likely to be picked up and intensively examined at an early stage before they have been able to do harm. It is our view that the relatively slow progress in the establishment of agreed threshold limit values in this country has been largely due to the lack of an authoritative expert body of this kind with a wide and comprehensive remit. It would, of course, be necessary to work out carefully the relationships between the proposed Advisory Committee and existing bodies operating in specialised fields, such as the Advisory Committee on Pesticides and other Toxic Chemicals.

332. Careful thought needs to be given to the way in which new toxic substances or new applications of familiar substances might be brought to the attention of the standing Advisory Committee. We think that a chemical manufacturer marketing a new substance for industrial or commercial use should be required to supply basic information about it in a prescribed manner to the Authority for Safety and Health at Work. Importers should be under a similar obligation. The effect of this would be to provide a central record containing information about the introduction of new substances, and the procedure would put the standing Advisory Committee on Toxic Substances in a position to follow up cases where they had doubts. The process of notification would not relieve the manufacturer or industrial user of any of their statutory and common law obligations. The Committee would not be expected to screen everything that came along, but would be in a position to keep a special watch on substances which, because of their chemical structure, presented the possibility of health hazards. In this way, and without any general impediment to innovation, cases of doubt could be picked up and subjected to prompt and thorough investigation. We believe from our discussions that industry would readily co-operate with such a scheme of notification; and consideration could, therefore, be given to introducing it on a voluntary basis in the first instance in order to test any difficulties that might arise.

333. To recapitulate, we recommend that the approach to the control of toxic substances in industrial and commercial use should be on the following lines:—

- (*a*) New comprehensive legislation on safety and health at work should impose a general statutory obligation on manufacturers and importers to ensure that no new chemical or other potentially injurious substance is marketed for industrial and commercial use unless it has been adequately tested for safety; and powers enabling the introduction of regulations prohibiting or imposing conditions over the importation, manufacture, storage and use of any toxic substance specified in the regulations. These would include powers to require regular atmospheric testing by employers in appropriate cases.

- (b) The Authority for Safety and Health at Work should be guided by an expert Advisory Committee on Toxic Substances which would give technical advice on specific problems, on the establishment of standards, and on the application of regulations and codes of practice in this field.
- (c) A manufacturer or importer marketing a new chemical or other potentially harmful substance for industrial or commercial use should be required to supply basic information about it to the Authority for consideration by the Advisory Committee.

IV. Radiological protection

334. The importance of general awareness in stimulating safety effort is well illustrated in the field of radiological protection. The hazards of radiation were very starkly demonstrated by the effects of the atomic bomb, and there has been prolonged international discussion about the widespread deposition of radioactive matter through weapon-testing. The impact of this has been a major factor in the development of ultra-cautious attitudes, a tremendous research effort, and the imposition here and overseas of elaborate controls over nuclear installations and the use of ionising radiations in industry and commerce. Control technology in this field is very highly developed. As a result the potential risks are, as a matter of probability, remote. Nevertheless, they are not non-existent, and the potential consequences of control failure are such that there can never be room for relaxation. The risk of unforeseen criticality on nuclear sites is one that requires unremitting attention, as is the growing international problem posed by the accumulation of highly active radioactive wastes in permanent storage.

335. It is estimated that in this country some 75,000 people work in regular contact with radiating equipment or radioactive substances. These may be found in hospitals, in atomic energy establishments, in the armed services, in many fields of research, and in industry generally. Legislative and administrative responsibilities for radiological protection are divided between a number of departments. The most important of these responsibilities from our angle of interest are those of the Department of Employment (control over the use of radioactive materials in factories) and those of the Department of Trade and Industry (licensing of nuclear installations). Many other departments have responsibilities in their own spheres of interest, including the Department of the Environment (control over the disposal of radioactive wastes), the Ministry of Agriculture, Fisheries and Food, the relevant Scottish departments, and others.

336. The Nuclear Installations Acts 1965 and 1969 contain provisions for safety regulation as part of a general structure of law governing the duties and liabilities of the operators of nuclear installations. Under the Acts the responsible Minister is able to attach conditions to the licences required for the construction and operation of such installations, and this power enables the Nuclear Installations Inspectorate to exercise close control over the design, construction and operation of all nuclear reactor installations other than those of the UKAEA and government departments. The Minister is advised on all

aspects of his responsibilities for nuclear safety under the Acts by the Nuclear Safety Advisory Committee, which has an independent chairman and includes distinguished scientists in relevant fields, officials, and people from the nuclear industry.

337. The Nuclear Installations Acts apply only to certain sites. They have no bearing on the use of radioactive materials elsewhere. Within industry generally the use of sealed and unsealed sources of ionising radiations is covered by regulations under the Factories Act. Their use in research establishments and in medical and dental practice is covered by authoritative codes of practice. The Department of the Environment, with its radiochemical inspectors, administers the Radioactive Substances Act 1960 under which all users of radioactive materials must be registered, and arrangements for the disposal of radioactive wastes are subject to prior authorisation. Copies of certificates of registration, and information about disposal arrangements, are sent to local authorities.

338. In addition to the departments mentioned in paragraph 335, a number of other departments including Health, Defence and the Home Office have executive responsibilities in this field,* and it is obviously important that all of this regulatory work should be based on co-ordinated research and shared information, taking into account international standards established by recommendations of the International Commission on Radiological Protection as well as the work of such bodies as the International Atomic Energy Agency and the European Nuclear Energy Agency. In this country, determination of the basic biological effects of radiation is the responsibility of the Medical Research Council. The provision of information and advice for the practical implementation of standards based on this information, and the research and training involved, are now the responsibility of the National Radiological Protection Board, an independent statutory body appointed by the Health Ministers under the Radiological Protection Act 1970. The Board has absorbed most of the scientific and technical staff of the Radiological Protection Division of the UKAEA's Health and Safety Branch, and also the Medical Research Council's Radiological Protection Service, whose activities were transferred to the new Board on 1st April 1971. The Board's functions are to advise government departments and other organisations on all aspects of radiological protection, to conduct research and to provide services including education and training. These new arrangements should ensure a high degree of co-ordination in research, training and the provision of expert information and advice on radiological protection in all fields—work, transport, consumer protection and so on. We believe that the work of the National Radiological Protection Board and its staff would be facilitated by our proposals in chapters 4-6 which, so far as safety and health at work is concerned, would have the effect of bringing control over nuclear installations and control over the use of radioactive materials and radiating apparatus in industry, commerce, hospitals and research establishments under a single Authority, thereby reducing the degree to which executive responsibilities in this field are fragmented. The Authority for Safety and Health at Work would be a significant focal point for the intelligence and advisory work of the NRPB,

* These include responsibilities deriving from the Radioactive Substances Act 1948.

339. In this way, the establishment of our proposed Authority would help strengthen the co-ordinating measures already taken in the field of radiological protection. At the same time the integration of nuclear installations control within the administrative arrangements for industrial safety generally would be a step towards bringing to bear over a wider field the advanced methods of safety and reliability analysis that have been developed in the nuclear industry. It is clear that the relationship between our proposed Authority and the NRPB must be very close. Although we recognise that the NRPB currently exercises its functions in accordance with directions given by the Health Ministers in consultation with the Atomic Energy Authority and the Medical Research Council, we believe that it would be very desirable to work out suitable arrangements to provide a clear institutional link between our proposed Authority and the NRPB.

V. Noise

340. In recent years environmental issues have come to occupy a place in the forefront of public debate, in this country as in others. In this debate few subjects have been more discussed than the problem of noise, and concern over noise has been reflected in an increasing number of studies and reports of an official character.

341. In 1963 the Wilson Report on Noise* dealt with the subject extensively and made recommendations about many aspects of the matter including noise from aircraft, traffic and industry. In a chapter on occupational exposure to noise the Report suggested that a hazardous noise environment existed in many industries, but that the existing knowledge of this highly complex problem did not provide a sufficient basis for legislation. It recommended further research, after which government departments should consider the scope for laying down by legislation minimum standards to protect workers against damaging noise in industry. More recently, the Report *Neighbourhood Noise* by a working group appointed by the Noise Advisory Council discussed some of the sources of noise affecting the general public and recommended that there should be a new and more radical Noise Abatement Act.

342. The Report *Hearing and Noise in Industry* published in 1970 (HMSO) presented the findings of a long-term research project into the nature of industrial noise and its effect on hearing. This research, undertaken by Professor W. Burns and Dr. D. W. Robinson for the Department of Health and Social Security, established a system of predicting on a statistical basis the hearing deterioration to be expected for specified exposures within a wide range of industrial noise. Amongst other things the report suggested that workers should not be consistently exposed over long periods to a noise emission level higher than 90 dB(A).ⁱ Other independent studies and surveys of industrial noise have been made, and they have usually attracted considerable publicity.

* *Final Report of the committee on the problem of Noise*. Cmnd 2056, HMSO 1963.
Neighbourhood Noise. HMSO 1971.

190 decibels as measured by the system which corresponds approximately to the responses of the human ear.

343. Recent years have seen the introduction of regulations to reduce traffic noise and arrangements designed to limit the noise from airports. In this general trend the interests of workpeople must not be overlooked. The problem of noise within industry is technically intractable, and progress in this field has been slow in all the industrialised countries. From the earliest days of the industrial revolution noise was regarded as part of the natural and inescapable order of things in industry. High noise levels were something that workpeople expected to have to put up with. This is no longer the case, Attitudes and expectations have changed quite dramatically and industrialists, trade unions and the inspectorates have been giving increasing attention to the matter. The 1969 Annual Report of the Chief Inspector of Factories included a special chapter on noise in industry describing the nature of the problem and discussing various approaches to a practical programme of noise control. The latest edition (1971) of the Factory Inspectorate's booklet *Noise and the Worker*,* sets out up to date facts and advice about noise danger levels and methods of measurement and reduction. The Inspectorate have also issued a Technical Data Note containing guidance to designers of machinery on methods of reducing noise.^t More recently (April 1972), the Department of Employment has published a Code of Practice which was drawn up by the Industrial Health Advisory Committee's sub-committee on noise. Increasing interest by the trade unions is illustrated by a recent safety agreement between GKN (South Wales) Ltd. and the trade unions at its Tremorfa factory. This, we understand, includes a rule that the wearing of protective ear-muffs in high-noise areas is a condition of employment.

344. Industrial noise has also become a live issue in the field of compensation. In December 1971 a court awarded damages for the first time in Britain for deafness caused by noise at work, a judgement which is likely to have far reaching consequences. The Department of Health and Social Security's Industrial Injuries Advisory Council is examining the question whether there are degrees of noise-induced hearing loss which satisfy the conditions for prescription as an industrial disease for the purposes of the National Insurance (Industrial Injuries) Act.

345. We are, however, concerned with prevention rather than with compensation. The pressure that has developed for action on noise is well-founded. Apart from the loss of efficiency caused by distraction and irritation, the relationship between exposure to certain levels of noise and hearing loss is now recognised. Whilst the problem is by no means confined to within industry, the evidence is that many workpeople may be exposed to harmful noise levels. Industrial noise control is currently being studied by the Department of Employment's Industrial Health Advisory Committee, and we recommend that this matter should be an item of high priority in the programme of the new Authority for Safety and Health at Work. There should be a specialist branch dealing with noise within the new inspectorate.⁴ Further, we believe that the time is ripe to include basic requirements on

* *Noise and the Worker*. Health and Safety at Work Series No. 25, HMSO 1971.

^t *Technical Data Note 12: Notes for the guidance of designers on the reduction of machinery noise*. HMFI, 1970.

Code of Practice for reducing exposure of employed persons to Noise. HMSO /1972.

noise control in occupational safety and health legislation. This should include powers to require employers to monitor and record noise levels from specified processes. Such requirements, whilst necessarily of a general character, would provide a firm basis for an accelerated programme of noise control in industry. In our view, cost and competition factors make this a special case where the influence of an authoritative code of practice is unlikely to have a sufficiently rapid effect unless underpinned by legislation.

VI. Design and manufacture

346. In chapter 1 we discussed how the existing occupational safety legislation is aimed at a limited range of targets. One aspect of this is the way in which the legislation places many obligations upon employers in respect of their use of plant, machinery and equipment; but very few on those who design and manufacture the equipment. This may be thought surprising in view of the generally accepted proposition that the first step in the promotion of safety and health at work is to ensure, so far as may be practicable, that plant, machinery, equipment and materials are so designed and constructed as to be intrinsically safe in use. Some manufacturers put a great deal of research into the safety aspects of what they produce. Nevertheless, many ergonomists take the view that design engineers tend to be over-preoccupied with hardware technology, that is to say with the purely technical problems of machine performance, and that the relationship between the machine and its human operator remains a relatively neglected field of study. We think that there is some force in this viewpoint. Whatever the case, the present situation falls a long way short of the desirable objective where a user buying a new piece of equipment can be confident that he will not have to spend money to make safe dangerous parts which could have been eliminated by design. We believe that the natural pressures towards safer design should be reinforced by statutory requirements bearing directly upon the manufacturer as well as upon the user.

347. Under the present Factories Act, legal requirements concerning the design and construction of plant, machinery and equipment are limited, and very few of them bear directly upon the manufacturer. This is perhaps less true of some of the other safety legislation. For example, agricultural field machinery must be fitted with safety devices (with the exception of guards for power take-off shafts) before sale, and the Agriculture (Tractor Cabs) Regulations 1967 forbid the sale or hire of a new tractor unless fitted with a safety cab manufactured to a specification approved by the Agriculture Departments. In mining, statutory powers have been extensively used to require that certain types of equipment such as detonators and electrical apparatus must be specifically approved by the Secretary of State for Trade and Industry, although the direct obligations rest on the mine owner or manager rather than on the manufacturer of the equipment.

348. We should mention at this point that under factories legislation considerable progress has been made in ensuring the safe construction of certain plant such as boilers, cranes and lifts which are subject to specific

regulation (although with obligations placed on the user rather than the manufacturer). In this connection a criticism raised in some of the submissions made to us was that whilst much plant of this type must be inspected by 'competent persons', there is no legal definition of competence in this context. Statutory inspection and certification of such plant is carried out in some cases by employees, in others by specialist organisations, or by engineering inspectors employed by insurance companies. We were told that most people engaged on this type of work in other countries are either state-licensed or state-employed, and it was suggested to us that any person undertaking such duties should be required to possess an authorised certificate of competency indicating the attainment of a specified standard of training and qualification. We note that certification of plant inspectors was also proposed in the report of the Committee of Enquiry on Pressure Vessels.* We were not able to explore this particular matter in detail, but we record it as a matter requiring attention by our proposed Authority.

349. To return to the general point, it appears to be generally accepted that, taking industry as a whole, the present legal requirements concerning design and manufacture are too limited and usually too indirect. The subject is not approached in a comprehensive way, the nature of such requirements as exist sometimes gives rise to doubts and uncertainties, and the burden of the statutory obligations is unfairly distributed as between manufacturer and user. Overseas, the basic approach tends to be more comprehensive. For example, the Federal German Law on Technical Equipment 1968, generally known as the Equipment Safety Law, requires that all manufacturers and importers must ensure before sale that their equipment, when properly used, is safe from hazards to life and health. The Law is satisfied if it can be shown that the equipment complies with the statutory accident prevention regulations, relevant German national standards and the 'recognised rules of technology'. The Law provides for the making of regulations which will list the relevant accident prevention regulations and recognised non-statutory standards. The Swedish Workers' Protection Act 1949 requires that manufacturers must ensure before sale that equipment is fitted with the necessary safety devices and offers adequate security against accident and injury to health.

350. It is undoubtedly true that the interpretation and enforcement of obligations laid upon manufacturers of plant, machinery and equipment raises problems. Where obligations of a general character are concerned, designers and manufacturers may have difficulty in anticipating what the courts may pronounce to be dangerous. Inspectors can be placed in a difficult position when asked for advice by manufacturers, particularly where large development costs may be involved. On the other side of the coin, enforcement action against a manufacturer may well be difficult unless accidents arising from an unsafe piece of equipment have actually occurred. Furthermore, it is extremely important that any measures adopted should not impede innovation and technical progress. Whilst recognising these difficulties, we do not believe that they are insuperable when account is taken of the many generally recognised non-statutory standards which already exist in the field of design and construction. We have already recommended (chapter 5) that more use should be made of non-statutory standards and codes of practice, and we

* *Report of the committee of Enquiry on Pressure Vessels*. HMSO 1969.

believe that this approach—within a broad statutory framework—has considerable potential application to this problem of ensuring safer design without impeding innovation.

351. The Mensforth Report* discussed the arrangements in this country for the quality control, inspection, testing and certification of engineering products and materials to declared standards of performance, safety and reliability. There are two broad interrelated strands to this work—on the one hand there is the work of testing and certification; on the other there is the development of standards and specifications by which the performance and physical characteristics of products may be judged. Many bodies such as the British Standards Institution, the British Approvals Service for Electrical Equipment in Flammable Atmospheres (BASEEFA), and the Associated Offices Technical Committee are engaged in this work, and the Mensforth Report drew attention to its importance in view of the increasing amount of legislation at home and overseas requiring that safety, health and pollution regulations must be satisfied, and of the need for international harmonisation of standards and methods of specification, testing and certification. The EEC Commission can specify technical standards in Directives binding upon community members, and has emphasised in this the need for harmonisation of standards internationally.

352. Quality assurance bodies are not, of course, necessarily concerned solely or even mainly with safety. There is often a correlation between conformity with safety standards and reliability of performance, but this does not necessarily follow. Consequently, whatever the arrangements in the field of quality control generally, it is important that the Authority responsible for safety and health at work should be in a position to select and designate those particular standards and systems of approval which meet its own requirements and purposes.

353. We recommend, within the context of our general proposals, that the approach to this subject should be along the following lines. First, there should be a general statutory obligation on those making and marketing plant, machinery and equipment for industrial and commercial use to ensure that it is in a condition enabling it to be used in compliance with all safety provisions relating to design, construction and safeguarding. Secondly, the Authority should have powers to prepare special regulations as necessary concerning safe design and construction, and these regulations should impose direct obligations on manufacturers. Thirdly, in deciding on the extent to which these regulatory powers need to be used, and how they should be used, full account should be taken of any relevant British and international standards (see also chapter 5). Standards of specification, testing and certification will continue to be developed by the various expert bodies engaged in this work, and the Authority for Safety and Health at Work should have power to require compliance with particular standards or approval arrangements made and operated by such bodies. Flexibility would be needed

* *Report of a Committee on the Means of Authenticating the Quality of Engineering Products and Materials*. HMSO 1971.

A brief note on the implications of entry to the EEC is at Appendix 12.

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in exercising these various powers. In some cases the general requirement backed up by testing and inspection arrangements would suffice. In others it might be appropriate to use regulations to spell out or refer to specific standards.

354. We also recommend that the new unified inspectorate should pay particular attention to liaison with designers and manufacturers of plant, machinery and equipment, and with the professional design and engineering bodies. Feedback of information from those who use the machinery and equipment to those who design and make it is obviously of crucial importance, and we believe that the inspectorate can be a valuable additional channel of communication for this feedback.

CHAPTER 12

THE ORGANISATION OF OCCUPATIONAL MEDICINE

355. Our report is concerned mainly with the basic principles that should underly the statutory and voluntary arrangements for safety and health at work. Except where the context of the discussion clearly indicates otherwise, we have drawn no distinction between the safety and the health aspects of the subject. In this chapter we want to deal specifically with the role of occupational medicine, and in view of the variety of ways in which the terms 'occupational health', 'occupational hygiene' and 'occupational medicine' are sometimes used, it is necessary to begin with definitions.

356. For our purposes we have taken occupational health to mean that which is concerned with the reactions of workpeople to their working environment, and with the prevention of illhealth arising from working conditions and circumstances. As thus defined occupational health comprises two main elements—occupational medicine, which is a specialised branch of preventive medicine concerned with the diagnosis and assessment of health hazards and stresses at work; and occupational hygiene, which is the province of the chemist and the engineer engaged in the measurement and physical control of environmental hazards. Clearly, these two elements must be closely integrated, since the basis for environmental control must be derived from the medical assessment of risk. Equally clearly, in occupational health work there is a very large and important non-medical element. In other words, occupational health is very much a multi-disciplinary subject requiring the combined knowledge and skills of doctors, chemists, engineers, nurses and others.

357. We discuss some rather different views of occupational health and occupational medicine later in this chapter. Our definition is in large agreement with the view of the Department of Employment, which submitted in written evidence that:

'The role of occupational medicine can be understood only against the background of the general structure of health services in this country. The main element is the personal and mainly curative work of the National Health Service which is centred on the individual and family and not on the place of work. The second broad division of the health service is the environmental, preventive or "public health" service provided for the community as a whole . . . In the field of occupational health the working environment is of predominant importance, and it is engineers, chemists and others rather than doctors who have the expertise to change it'.

358. We have already made some references to the work of occupational hygienists in chapter 7 and in that section of chapter 11 which deals with toxic substances. The hygienist is concerned with establishing, in the light of medical advice, the desirable conditions in which people ought to work. In this chapter we shall concentrate upon the contribution of the specialist in occupational medicine, who provides the basic medical intelligence needed for the work of

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the occupational hygienist and who thus plays a vital, albeit not exclusive, role in the promotion of occupational health. We have looked at the present statutory and voluntary arrangements for bringing to bear the contribution of the specialist in occupational medicine, and at how they fit in with the occupational safety and health arrangements generally.

Previous reports

359. It should be mentioned at this point that a number of previous reports have examined various aspects of provision for occupational health, and we note here some of their principal conclusions relevant to our subject. The Dale Report, 1951* surveyed the structure and functions of the National Health Service, the local authority health services and industrial health services. The Report recommended that development of private industrial health services should be encouraged 'with due regard to the demands of other health services for medical manpower', but that efforts should be made to ensure closer co-operation between the various health services under a representative advisory committee appointed by the Ministers of Health and Labour.

360. In 1962 the Report of the Porritt Committee[†] which was commissioned by the British Medical Association, the Royal Colleges and other medical organisations, reviewed the provision of medical services to the public. In a chapter on occupational health the Committee recommended the development of an occupational health service of a dual character. This would be in part privately organised (based mainly on existing medical services in larger firms), and in part organised and administered through the National Health Service (mainly covering smaller firms). The Report stressed, however, that an occupational health service should not become merely an extension into the factory of the family doctor service.

361_ In 1968 the Report of the Royal Commission on Medical Education) described the evolution of the present tripartite structure of general practitioner, hospital and local authority health services. The Commission foresaw more co-ordination in future between services for particular groups of the population. In regard to industrial medicine it said that the existence in Britain of a comprehensive system of medical services available to all 'must limit the scope of the services demanded of British industrial medicine, and we do not expect any major changes in this respect in the foreseeable future' (Report, paragraph 52).

Existing statutory arrangements

362. At present the main contribution to occupational medicine made by the state lies in the work of Appointed Factory Doctors (but see paragraphs 365 and 371) and of the Medical Services Division of the Department of Employment. Industry's own contribution is made through works medical officers and nurses employed by individual firms. We discuss these various contributions in the following paragraphs.

* *Report of a Committee of Enquiry on Industrial Health Services*. Cmd 8170, HMSO 1951.

† *A Review of the Medical Services in Great Britain*. Medical Services Review Committee, Social Assay, November 1962.

Report of the Royal Commission on Medical Education. Cmd 3569, HMSO 1968.

363. The Factories Act definition of bodily injury includes injury to health, and both the Factories and OSRP Acts and their regulations contain many provisions on general health matters and on specific health hazards. The general health provisions deal with such things as cleanliness, temperature, ventilation and lighting, and there are numerous specific requirements controlling the use of toxic materials such as asbestos, lead and radioactive substances. We have already made some recommendations in this connection in chapter 11. The Factory Inspectorate enforces these legal requirements, and provides information and advice generally on occupational health. The field force of general inspectors is supported by the specialist branches, including what was until recently the Medical Branch. The Medical Branch comprised 21 medical inspectors who undertook surveys and investigations, conducted research into particular problems, and in general provided the Factory Inspectorate with the medical expertise needed for the identification of health hazards and the development of environmental control measures. In 1971 the Medical Branch was absorbed into a new Medical Services Division, within the Department of Employment but separate from the Factory Inspectorate. The new Division is concerned with the whole range of the Department's medical services including the medical aspects of training and rehabilitation, but a major part of their work will continue to lie in close collaboration with the Factory Inspectorate on occupational health matters. The personnel of the new Division are known as medical advisers.

364. In occupational health and environmental control, the work of the Department's medical advisers is integrated with that of other specialists within the Factory Inspectorate such as chemical and mechanical engineering specialists. The Industrial Hygiene Unit, to which we have referred in earlier chapters, was established in 1966 to study the sources of health hazards in working environments and make recommendations for measures of control. This unit is staffed by chemists and other non-medical specialists.

365. Apart from the statutory provisions dealing with the working environment, there are also statutory requirements concerning the medical examination of young persons entering employment in factories, and of all persons employed in certain hazardous occupations. These examinations are carried out by Appointed Factory Doctors (AFD's) under the overall supervision of the Factory Inspectorate. There are some 1,500 AFD's, most of whom are general practitioners holding AFD appointments on a part-time basis. The AFD service is being abolished under the new arrangements which we discuss in paragraphs 371 et seq.

Private medical services in industry

366. Many firms employ their own doctors to advise on medical problems, to conduct medical examinations and in general to look after the health of their workforce. The British Medical Association estimates that some 600 doctors are employed full-time in private and nationalised industry, and that possibly as many as 2,000 are employed part-time. The majority of these are to be found in the larger firms, where the medical facilities provided are sometimes quite lavish. Occupational health nurses also play an important role, The

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occupational health section of the Royal College of Nursing has some 1,700 members, many of whom work within industry. The Department of Employment told us that they estimated that about 90% of factories employing more than 500 persons had some medical or nursing supervision, but that amongst the smaller firms the position was very different. Some of the smaller firms pay for facilities made available by group industrial health services. There are seven of these in different parts of the country, providing services for small employers covering in total about 100,000 workers.

367. It is difficult to establish how much time works medical officers spend on their various functions such as advice to senior management, medical examinations, individual employee problems, casualty treatment, research and so on. It is obvious, however, that by no means all of their work falls within our definition of occupational medicine. At least part of their time is devoted to the treatment of individuals, that is to say to the sort of work undertaken by general practitioners in the NHS. The directors of the group industrial health services estimated that about one-third of the time of the group services was taken up by casualty work and treatment.

Research

368. Research into occupational medicine is undertaken at various levels. A good deal is done within industry itself by organisations such as the Asbestosis Research Council. Many epidemiological studies and much laboratory development work is undertaken by the Medical Services Division of the Department of Employment. At a more basic level, research into occupational medicine is undertaken by units of the Medical Research Council, by a number of universities which have departments of occupational medicine or occupational hygiene, and by various medical institutes and hospitals.

A comprehensive occupational health service

369. We have already indicated in earlier chapters that many submissions to us expressed concern about health hazards in industry, particularly in relation to the extensive use in manufacturing processes of a wide variety of potentially harmful substances. These expressions of concern were usually coupled with pleas for a considerable extension of occupational health arrangements. Indeed, over the years many organisations have advocated a 'comprehensive occupational health service'. Unfortunately it is not always easy to see exactly what is meant by this. To some it means essentially the employment of many more doctors and nurses within industry, and we discuss this further in paragraphs 378-379. To others it means a central research, investigation and advisory service organised on a national basis and employing a relatively limited number of specialists in occupational medicine. The difference between these two concepts, sometimes expressed in the contrasted use of the terms 'medicine in industry' and 'occupational medicine', is quite fundamental.

370. As a national service, what was formerly the Medical Branch of the Factory Inspectorate has been criticised as being too small, and too restricted by the narrowness of its statutory responsibilities (for example, only 16 industrial diseases are notifiable under the Factories Act). Conversely, the

private medical services within industry are sometimes criticised as constituting at least in part a wasteful duplication of the treatment and curative facilities provided by the National Health Service; and as being limited in the sense that the purview of a works medical officer is largely confined to the problems of the particular firm which employs him. We think that there is force in all of these criticisms. We now turn to consider the steps that are currently in train to reorganise and strengthen the state's medical contribution to occupational health.

The Employment Medical Advisory Service

371. In 1966 a report by a sub-committee of the Department of Employment's Industrial Health Advisory Committee recommended that the routine statutory medical examination of young persons should be abolished, and that the Appointed Factory Doctor service should be replaced by a more integrated and expert service with a wider role in occupational health. These proposals were reflected in Part 1 of the Employed Persons (Health and Safety) Bill, which was introduced into Parliament in February 1970, but was lost on the dissolution of Parliament in the summer of that year. A Bill on very similar lines—the Employment Medical Advisory Service Bill—was introduced by the present Government and received the Royal Assent in May 1972. It is expected that the provisions of the new Act will be brought into operation by the end of 1972.

372. The Employment Medical Advisory Service Act provides for abolition of the routine medical examination of new entrants to industry in favour of a much more selective system; and for abolition of the existing AFD service. A new Employment Medical Advisory Service will be established with a broad role in occupational health. This will include not only the provision to government and industry of medical advice on occupational health and hygiene, but also advice on the medical aspects of training, rehabilitation and other employment matters. The Department of Employment's Medical Advisers (including the personnel of the former Medical Branch of the Factory Inspectorate), will form the nucleus of the staff of the new EMAS, which is to be built up to a total of more than 100 full-time and part-time doctors, assisted by nurses and other personnel. The intention is to provide a body of experts in occupational medicine who will investigate problems and advise the Factory Inspectorate, employers, works medical officers, general practitioners and others on medical aspects of occupational health and hygiene. The health of young people at work will be one of its special concerns. In addition to its day-to-day work, the EMAS will carry out surveys and epidemiological studies of the kind that can only be effectively undertaken on a countrywide basis. The service will be regionally organised, with groups of full-time advisers based on the main conurbations. Arrangements are to be made for close liaison and collaboration between the EMAS and the National Health Service, for example in the co-operative use of laboratory and other investigatory facilities. Moreover, some of the part-time advisers will no doubt be doctors working for the NHS as general practitioners or in hospitals. We understand that it is the intention that the new service should also collaborate actively with works medical officers employed privately in industry, to avoid duplication of effort.

373. The new Employment Medical Advisory Service, when fully operative, will represent a considerable extension of the state's contribution to the promotion of occupational health. Although the EMAS will have certain statutory powers, the new service will be geared to a broad advisory role rather than to a narrow, regulatory approach. This is very much in harmony with the general philosophy of this report. The plans are the product of careful consideration over a period of years, involving much detailed consultation with professional and other bodies. In general, therefore, we feel we need do no more than commend this useful and carefully planned step forward in the development of occupational medicine. We would, however, comment on two specific points to which we attach particular importance.

374. The first amounts to a point of clarification. Whilst it is envisaged that the new EMAS will work in close association with the Factory Inspectorate, present plans are to base it on the Medical Services Division of the Department of Employment. This, as we have seen, is concerned additionally with the provision of medical advice in the employment field generally. Elsewhere in this report we have proposed the establishment of a new Authority for Safety and Health at Work, with a unified inspectorate. We would expect the EMAS to become part of the Authority's organisation. Within that it would continue to have a fairly distinct identity. It would not be concerned exclusively with occupational medicine as we have defined it, but also with the medical aspects of rehabilitation, training and other employment matters. We see this as an advantage. Overseas, rehabilitation is often included within the functions of the national occupational safety organisation, and we think that the medical aspects of training and the study of broad problems such as mental health in industry and sickness absence also fit naturally into this picture.

375. Secondly, the proposed arrangements envisage active collaboration at operational level between the Employment Medical Advisers and the National Health Service. We pick this out as being, in our view, of the utmost importance. The main doubts expressed in submissions to us about the EMAS proposals revolved around fears that the new service might develop in comparative isolation from the mainstream of medical research, knowledge and practice. We believe that these fears will prove groundless provided that the administering departments concerned work out the arrangements for consultation and collaboration with care and imagination. In any event, it has to be borne in mind that wherever occupational medicine is placed within the administrative framework, there will inevitably be an interface between the activities of the Authority for Safety and Health at Work and the activities of the NHS. This interface is a critical one. We agree with those who say that it is important that the Employment Medical Advisory Service should not develop in isolation from the mainstream of medicine. But the converse is also true. Doctors in general and hospital practice should be encouraged to show more interest in and acquire more knowledge about occupational factors in the health care of the individual. This is, of course, primarily a matter of medical education—we should very much like to see more emphasis on occupational medicine in the training of doctors. A modest but real contribution can, however, be made by very close liaison between those working in the EMAS and those working in the NHS. Together with this collaboration at operational level there should, of

course, be close liaison at policy level between the Authority for Safety and Health at Work, the Department of Health and Social Security, and the Medical Research Council.

376. So far as the long-term future is concerned, we do not regard these administrative arrangements for occupational medicine as necessarily immutable. Much will depend upon future developments both in the EMAS and in the NHS, and particularly upon experience of co-operation between them. In the following paragraphs we offer comments upon some of the longer-term issues associated with this point that have been raised in evidence.

Occupational medicine in the future

377. We have interpreted 'occupational health' as being concerned with preventing ill-health through control of the working environment, and 'occupational medicine' as being one specialised element in this work. Several points flow from this. First, occupational health as thus defined is obviously very closely enmeshed with the work of accident prevention through control of the working environment. The physical preventive measures needed will often be similar in nature and will require the application of similar skills, whether the target is described as a health hazard, an accident hazard, or both. Perhaps the most obvious illustration is provided by ventilation engineering, which is applied to prevent the accumulation of explosive and flammable dusts as well as to prevent unhealthy atmospheric contamination. A second and closely related point is that occupational health, in our definition, is a multi-disciplinary subject requiring the skills of the chemist and engineer as well as the knowledge of the medical specialist. Thirdly, it is not at all synonymous with general medical care provided at the point of occupation. It does not imply a need to have a doctor at every sizeable factory.

378. As we indicated earlier, it was clear that some of the submissions made to us during the course of the Inquiry were based on very different concepts of occupational health and occupational medicine. Some defined occupational health in much wider terms, to embrace not only the prevention of occupational ill-health, but also the total health care of the individual worker, taking into account the effect of his work upon the man and of the man upon his work. This approach is one which heavily emphasises the contribution of the medical practitioner. It leads some to argue that there should be many more doctors employed by individual firms and, further, that the work of these doctors should be undertaken within the framework of the National Health Service. The British Medical Association, for example, urged that employers should be required by law either to provide their own occupational health service to a specified standard, or to pay for a service provided by the state. The state service would be part of the National Health Service, and the privately provided services would also be 'recognised as an essential part of the National Health Service'.

379. It is not for us to say that employers should not recruit doctors to be part of their company organisation if they wish and are able to do so. Indeed, there are sound practical reasons for doing so in industries with significant

health hazards. But skilled medical manpower is very scarce. Those who advocate the much more extensive employment of doctors in industry are in effect calling into question the whole system of medical provision in this country. It is perfectly possible to envisage a general medical service which would be based in large part upon the place of employment, as indeed is the case in some other countries.* It is also possible to argue that the state's contribution to occupational medicine has hitherto concentrated too much on specific occupational diseases to the relative neglect of important fields such as mental health in industry or rehabilitation after illness. It is equally possible to argue that our general practitioner service as currently organised tends to be somewhat isolated from real practical knowledge of the working conditions which influence the health of a large part of the population, and we have commented upon this in paragraph 375. But neither this country, nor any other for that matter, is ever likely to be able to afford a comprehensive workplace-based health service on top of a comprehensive home and family oriented health service such as we have at present. Whether a comprehensive health service should be based mainly upon the workplace or mainly upon the home and family is a question which extends well beyond our terms of reference. It raises fundamental issues concerning the deployment of national medical resources which, amongst other things, would require for their determination extensive analysis of the costs and benefits of the possible alternative forms of organisation. These are very broad and long-term issues. The immediate issue is the need to strengthen the contribution of occupational medicine to safety and health at work within the context that currently exists. The two discussions should not be muddled. In our view, the traditional distinction in this country between general health and 'diseases of occupation' is a useful one and needs to be preserved if decisions as to what is necessary in the future in the field of occupational medicine are not to become confused.

380. As to the essentially different argument that occupational medicine (in our definition) should be organised within the framework of the National Health Service, we cannot help feeling that this is really a secondary issue. However it is administered, the function of occupational medicine as we have defined it will remain the same. Equally, however it is administered there will be an interface between the general health system and the occupational safety and health system, and a need for close liaison between the two at operational level (again, our comments in paragraph 375 are very relevant). As a practical matter we feel that the balance of the argument is clearly in favour of continuing to organise occupational medicine within the administrative arrangements for safety and health at work. We have advocated (paragraph 374) that the new EMAS should become part of our proposed Authority for Safety and Health at Work, and we believe that this arrangement would work very well. Looking to the future, the Health Departments are currently considering changes in the structure and organisation of the National Health Service, and it is doubtless true that any fundamental reorganisation of general medicine would provide an opportunity for further consideration of the place of occupational medicine within the administrative structure. We repeat that we would not necessarily

An interesting tentative discussion of the potential benefits of locating some NHS medical care facilities at workplaces is contained in the Office of Health Economics' publication *Of Sick*, January 1971.

regard the question of the organisational relationship between general medicine and occupational medicine as being finally determined by the establishment of an Employment Medical Advisory Service within the ambit of our proposed Authority for Safety and Health at Work. We see nothing in such a development to impede further consideration at the appropriate time; but we would hope that any such reconsideration would be based less on a priori arguments of the kind frequently put to us than on careful analysis of what actually happens in practice in the field.

CHAPTER 13

TRAINING

381. Most people are agreed that safety training is of vital importance. There is no unanimity about what in practice should follow from this proposition. Our experience has been that discussions about training for safety and health at work (which we refer to as safety training for the sake of brevity) too often tend to remain at an abstract and generalised level. An example this is the debate which has gone on for some time about whether safety training should be thought of as an integral part of job training generally, or whether it should take the form of specialised training taught separately. Put in these general terms, the debate is a sterile one. Safety training must be concerned with a variety of specific needs and circumstances, and in this context the concepts of 'integrated' safety training and specialised safety training are by no means mutually exclusive.

382. It is clear that in the normal job training of every operative there should be instruction in the potential hazards of the job as well as in the general principles of safe working. In that sense we accept that safety training must be an integral part of normal job training, and the important thing here is to ensure that the safety element is made explicit and given due emphasis. Having said that, it is equally clear that specialised training in safety matters is needed for particular categories such as managers, safety officers, instructors, supervisors and workers' safety representatives. The needs here are of the type that will often be best met by the provision of special off-the-job courses, organised to fit in with the general training of the grades concerned. Most important of all, whether it forms part of normal job training or takes the form of separate, specialised instruction, safety training is not a once-for-all exercise. There is much more to it than simply imparting technical know-how. It must be a continuing operation.

383. Throughout the Inquiry it was clear that many doubts exist as to what the real needs are in this field, and about what is actually being achieved by current methods. Clearly, priorities for future work should include more systematic assessment of safety training needs, and more evaluation of the results of current safety training methods and programmes. Whilst we recognise that this sort of thing is not easy, too little of it appears to have been attempted. Specific needs—which will obviously vary from industry to industry and between categories of personnel—must be worked out by intensive study of actual situations. We were encouraged to note that in 1971 the Department of Employment commissioned the Industrial Training Service to undertake a comprehensive study of safety training needs in the paper-making industry, the results of which should be available in the summer of 1972. We hope that more assessments of this type will be undertaken. Equally, the informed planning of training programmes requires knowledge of the effectiveness of existing methods and programmes. How far is a programme which looks sound

on paper effectively applied in the actual training situation? To explore this question an investigation into the safety instruction of first-year engineering apprentices was carried out by the Factory Inspectorate in collaboration with the Engineering Industry Training Board and the Department of Education and Science. We were told that the results showed that instructors varied considerably in their understanding and application of the principles of safety training recommendations, and that consequently the effectiveness of the training given was uneven. As a result of these findings the Engineering Industry Training Board set out to devise ways of providing more precise guidance for instructors engaged on this work. This kind of systematic evaluation and follow-through can yield lessons of real practical value, and needs to be attempted much more extensively.

Safety training within industry

384. The provision of training is primarily the responsibility of industry itself. Given the size and complexity of industry and commerce, it is difficult to form any clear impression of how far safety instruction is effectively embedded in training programmes generally, or how far the specialised courses available meet the real needs. We had much evidence about the importance attached to safety training, and on the extent of such training provided by individual employers, training organisations and others. At the same time doubts were freely expressed by employers' organisations as to whether the quantity and quality of safety training within their industries was really adequate, and these doubts were shared by the TUC and others.

385. The Industry Training Boards, of which there are at present 27 covering industries with 15 million employees, exist to promote more and better training in industry and commerce. At present they are able to promote safety training by providing grant-aid for approved schemes and by making recommendations about the nature of the training to be given. A memorandum issued by the Central Training Council in 1965 urged Boards to include in their plans specific provisions for safety training. Some Boards make it a general condition for grant that safety instruction must be incorporated into training programmes wherever appropriate. Some pay a grant for the training of safety officers. The Cotton and Allied Textiles Industry Training Board makes grants for the training of operatives dependent on the instructors being trained to give safety instruction. Some Boards have issued recommendations on safety training, some arrange conferences and seminars, and some, such as the Boards for Chemical and Allied Products, Construction, Electricity Supply, and Rubber and Plastics Processing, have set up safety working parties. The Engineering Industry Training Board told us that 6,000 people had been through its specially arranged courses on the Power Presses Regulations. A number of Boards have assigned responsibility for safety matters to a nominated officer, and each Board has a nominated factory inspector available to it on a consultancy basis, although the extent to which this facility is used appears to vary considerably.

386. There is therefore no uniform pattern in the way Boards have handled questions of safety training. Our overall impression is that whilst much useful work has been done, the amount of attention devoted to the subject varies

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greatly from one Board to another. This impression is reinforced by the evidence of the Central Training Council, which told us that 'in some industries a great deal has been done, but in others the Council accepts that there is room for much more to be accomplished'. There is also the evidence of the Department of Employment, which has general oversight of the activities of the various Boards. We were told that the Department intended 'to review the progress which has been made in each case, and to take appropriate steps to ensure that a suitable place is given to safety training by all Training Boards; and to ensure that, subject to the different circumstances of different industries, Boards are more consistent in the amount of attention which they give to the subject'. The future organisation of the training board system has been under review, and we return to this point in paragraph 391.

Off the job courses

387. Many types of off-the-job safety training courses are provided by the Royal Society for the Prevention of Accidents, the British Safety Council, industry-level safety organisations, accident prevention groups and technical colleges. At RoSPA's training centre at Acocks Green, Birmingham, more than 4,000 persons were given practical safety training in 1970 (during that year 122 courses of 25 different types were held, for periods of from one to five days). In addition to this, RoSPA organises courses at other locations and altogether provides some 200 courses a year including courses for foremen and supervisors, safety officers (an eight-week course based on the syllabus and training programme devised by the Institution of Industrial Safety Officers) and operatives in particularly dangerous jobs. In the same year the British Safety Council provided 107 safety training courses for supervisors, safety officers and young people, as well as over 30 first-aid courses. RoSPA and British Safety Council safety training courses are approved by some Industry Training Boards for grant purposes. In addition to these and other courses arranged by bodies such as local accident prevention groups, sessions on safety are included in the instructional techniques courses held at two Government Training Centres. Each year these courses are attended by over 3,000 instructors from industry.

Education and advanced training

388. Much of the evidence submitted to us drew attention to the importance of emphasising safety in schools and technical colleges, particularly where young people are embarking on courses of study in which they get their first introduction to workshop practices. At more advanced and specialised levels, a number of departments of occupational health and hygiene have become firmly established at universities, although the extent to which facilities exist for advanced study in this field remains considerably less than in some other countries. We were therefore encouraged to note the recent establishment at Aston University of a Chair in Safety and hygiene, where it is hoped that both degree and diploma courses will be provided. This new development should help to encourage at academic level a more integrated approach to the multi-disciplinary study of occupational safety and health, as well as providing facilities for advanced study by 'working practitioners' such as inspectors and safety officers. Beyond that we hope that there will be increasing recognition in other academic and professional disciplines of the importance and relevance of

occupational safety and health. For example, we think that the professional engineering institutions could make their concern with the subject much more explicit by including safety and health as an item in their syllabuses and examinations. It was put to us that engineers emerging from their professional training are frequently found to be unaware of certain types of hazard which are all too familiar on the shop floor. If this is so it is indeed a matter for comment. In this connection we think there is scope for regular contact between these institutions and the proposed Authority for Safety and Health at Work.

The need for co-ordination

389. We now discuss what we consider to be the main areas of weakness in the organisation of safety training, and make a number of recommendations. The first requirement is for a greater degree of positive co-ordination. Those who submitted evidence were overwhelmingly of the opinion that the various strands of safety training activity are inadequately co-ordinated, and that many of the deficiencies which are acknowledged to exist can be attributed to this fact. Some attempts to seek more co-ordination have been made. In 1967 the Industrial Safety Advisory Council, which advises the Secretary of State for Employment, set up a sub-committee on safety training which has examined aspects of the matter in co-operation with the Central Training Council. This examination has included consideration of the case for a national safety training centre or centres to act as focal points of knowledge and activity, a suggestion which is strongly supported by the TUC. The Scottish Committee of the Central Training Council sponsored a proposal for a safety training centre for Scotland and, with the assistance of the Glasgow Corporation Education Committee, this was set up late in 1971 within the Glasgow College of Technology. Currently, RoSPA is conducting an appeal for funds to build a National Safety Centre near London. This would, *inter alia*, provide facilities for occupational safety training, and the aim is to build it by 1974. We believe that most safety training activity is probably best organised on an industry-by-industry basis, and for this reason we have some doubts about the concept of a general-purpose national safety training centre or centres. We feel, too, that there is a danger that such centres might become too remote from what actually happens on the shop floor. Nevertheless the developments mentioned are interesting, and experience with them should provide some useful lessons for further consideration.

390. We would, however, look for better co-ordination mainly through our proposed Authority for Safety and Health at Work. We stress that by 'co-ordination' we do not mean unified control. The Authority itself would not be in the business of actually providing safety training, at least not to any significant extent. Safety training needs are extremely various and can only be met through a flexible network of facilities provided by industry, voluntary bodies, educational establishments and other agencies. The Authority would, however, be in a position to take a comprehensive overall view of safety training developments, to keep in touch with the various facets of safety training activity, to act as a catalyst and to inform, encourage and promote. This task is not easy to define, far less to accomplish successfully, but we regard it as one of the major roles to be played by the new Authority for Safety and Health at Work. We envisage that a training branch within the new Authority would liaise on this subject with

Training

any National Training Agency that might be set up (see paragraph 391), with the Industry Training Boards themselves, with the TUC and CBI, other trade union and employer organisations, and with bodies such as the Institution of Industrial Safety Officers, RoSPA and the British Safety Council. The personnel of the inspectorates already participate to some extent in direct training activities, for example by giving lectures, and we would hope that under the new Authority this participation could be selectively increased in special fields such as management training.

The Industry Training Boards

391. We have commented upon the uneven approach of the various Industry Training Boards, and we have no doubt that there is considerable room for improvement in the general level of their work on safety training. The organisation of their work generally has been under review, and Government proposals have been published for discussion.* These include proposals for the establishment of an independent National Training Agency, responsible to the Secretary of State for Employment for all training matters. The Agency would, amongst other things, co-ordinate and complement the work of the various Industry Training Boards and would take over their professional training staff. Legislation is expected in the 1972/73 Parliamentary session. Assuming that these proposals go forward in something like their present form, we would expect safety training to be regarded as one of those matters of common concern where it is intended that the Agency should play a 'major role in co-ordinating the activities of the individual Boards. With its powers to approve programmes submitted by the Boards, the Agency would be well placed to ensure that individual Boards paid explicit attention to safety in their standard-setting and advisory work. In this connection we strongly recommend that some safety specialists be included in the plans for the unified professional staff to be employed by the Agency. In any event there will clearly be a need for very close collaboration on safety matters between the National Training Agency and the proposed Authority for Safety and Health at Work.

Management training

392. The evidence indicates that a good deal—although not enough—is being done to provide safety training for key grades such as instructors, supervisors and safety officers. We were disturbed, however, at the apparent lack of safety training activity at the most crucial level of all—management. In chapter 2 we discussed the vital role of management in the promotion of safety and health at work. Nowadays many management courses are available which provide a wide range of specialist training in aspects of management such as marketing, costing techniques, production planning and so on. There is very little evidence, however, that much is done in courses provided for managers and potential managers to inculcate a better knowledge and understanding of the problems of safety and health at work, and of the relevance of such knowledge to other management considerations such as costing and operational planning. We urge that this matter should be given serious attention by the new Authority in collaboration with the Education Departments, the CBI and other appropriate bodies. We note in this connection that the proposed National Training Agency is expected to devote special attention to management training.

* *Training for the Future: A Plan for Discussion*. Department of Employment, February 1972.

The law and safety training

393. The safety training effort needs to be underpinned by adequate statutory provisions. We pointed out in chapter 1 that some important matters had been relatively neglected in the existing occupational health and safety legislation. Training is one of these. Despite general acceptance of the importance of training for improving attitudes and performance, the statutory provisions dealing with safety training tend on the whole to be patchy and inadequate.

394. Most of the relevant legislation contains some training provisions. The most comprehensive requirements are to be found in the Mines and Quarries Act and its regulations. These prescribe the qualifications to be held by mine managers and officials and the training to be given before a man is allowed to work underground. They also lay down that until a person is competent to work without supervision he can be employed only under the instruction and supervision of a competent person. Training arrangements for coal production workers must be approved by the Minister. In contrast, the safety legislation covering the bulk of the employed population—that is to say the Factories Act and the OSRP Act—have relatively little to say about training. Regulations made under the Factories Act lay down training requirements for certain types of work such as toolsetting at power presses or the mounting of abrasive wheels, and some training provisions are also contained in the OSRP Act. The effect of these requirements is limited because they extend only to work on certain types of machine. We consider that much more broadly-based statutory provision for the safety training of workpeople is needed.

395. In the new Act discussed in chapter 5 we envisage that the obligations laid on all employers will include a general requirement that employees must receive adequate instruction about serious hazards associated with their employment, and about precautions to be observed (see paragraph 129). In addition, there should be wide regulation-making powers concerning training. These should enable the Authority for Safety and Health at Work to formulate special requirements for the training of any particular grade or category of worker, or for the training of those employed on particular processes or using particular substances or equipment. There should be powers for specifying syllabuses and standards to be reached, and for approving particular training courses as satisfying the requirements of the statutory provisions. Powers of this nature could be used judiciously to reinforce the natural development of good safety training practice, as well as to help ensure high standards of competence in safety-sensitive jobs.

CHAPTER 14

RESEARCH AND INFORMATION

396. Much research is undertaken into various aspects of occupational safety and health, in forms ranging from the fact-finding surveys and diagnostic investigations and studies undertaken by the various safety inspectorates, to research of a more formal character carried out in research institutes and universities. It is not easy to form a clear picture of the overall balance of this activity. The government inspectorates themselves have only limited resources for undertaking research on their own account, although in recent years some steps have been taken to remedy this. Within the Factory Inspectorate, for example, the setting up of the Accident Prevention Studies Unit and of the Industrial Hygiene Unit has improved the inspectorate's capacity both in field studies and in laboratory investigation. Outside the inspectorates there are a number of well-equipped government research institutions such as the Safety in Mines Research Establishment, the Laboratory of the Government Chemist and the Building Research Station. Research into specific problems is carried out by independent research institutions such as the National Institute of Industrial Psychology, by industrial and trade research associations such as the British Iron and Steel Research Association, the Electrical Research Association and the British Ceramic Research Association. and by individual firms. ICI, for example, has one of the most advanced industrial hygiene laboratories for studying toxic hazards. Finally, research relevant to occupational safety and health is undertaken at a number of universities, particularly in departments of occupational health and hygiene, and by units of bodies such as the Medical Research Council. In this area each of the five Research Councils financed through the Department of Education and Science plays a broad co-ordinating role within its own sphere, although occupational safety and health is not a subject which falls comprehensively within the ambit of any one Council.

Research needed

397. Generally speaking, there has been no shortage of scientific research into physical and medical aspects of occupational safety and health problems. More knowledge is needed, however, about the influence of human and organisational factors in accident causation, about the interaction of multiple causative factors in actual work situations, and about the effectiveness of preventive measures. Elsewhere we discuss the need for improved statistical information (chapter 15) and for more research into the costs of accidents and of accident prevention (chapter 16). We ourselves believe that considerable emphasis should be placed on studies of real shop-floor situations, directly undertaken or sponsored by the Authority itself. We have in mind here work of the kind undertaken by the Factory Inspectorate's Accident Prevention Studies Unit. Diagnostic research of this type might be expected not only to assist the Authority in its day-to-day work but also to help identify problem areas where more formal research might be valuable.

Criticisms of occupational safety and health research' arrangements

398. We were repeatedly told that research in this field is inadequately co-ordinated. There are two broad aspects to this problem. First, there is the problem of 'conceptual fragmentation', that is to say occupational safety and health is not a clearly defined and well-established research discipline in its own right. Much of the relevant research is conducted along the highly specialised lines of established disciplines such as the physical sciences, medicine, psychology and so on. The separate component elements of the problems may be well-researched, but the various strands need to be more closely integrated within a multi-disciplinary approach.

399. Secondly, in the absence of a single authoritative body with a comprehensive view of occupational safety and health, there is no mechanism for planning and co-ordinating relevant research. The result is duplication of research in some areas, gaps in others, and inadequate collation and dissemination of research results. The Medical Research Council said in written evidence that 'The accessibility of the information required to assess research needs would be greatly improved if there was some simple new machinery for the co-ordinated and systematic collection of information on all matters relating to the identification, prevention and control of the health and safety problems of people at work', and also that 'there appears to be a serious under-utilisation of existing knowledge (provided by research) which could be applied in the control and eradication of health and safety problems at work'. The dissemination and utilisation of publicly financed research in this field is hindered by the existing fragmentation of departmental interests. To take two examples, the work undertaken by the Safety in Mines Research Establishment and by the Safeguards Division of the UKAEA is channelled more or less exclusively towards the mining and nuclear power industries respectively, although much of the expertise and knowledge acquired is capable of application over a much wider field.

The new Authority's role in research

400. As the Medical Research Council pointed out in evidence, the skills and facilities for the research needed are already available or could be developed within the existing research organisations and academic institutions. The problem is one of co-ordination. At government level it is perhaps surprising that the Department of Employment, which has legislative responsibilities over a large part of the field, has hitherto played a negligible role in the co-ordination of occupational safety and health research. It publishes a useful *Register of Research*, but even this is fairly narrowly confined to aspects of industrial health and safety which fall directly within scope of the Department's present administrative responsibilities. As regards more positive action, the Department said in evidence that its present powers for supporting external research are too restricted in the sense that it is unable to support relevant research that it has not directly commissioned.

401. Our proposed Authority for Safety and Health at Work would provide the central mechanism needed for a more co-ordinated research effort into occupational health and safety. It should not only have power to sponsor and to support external research where needed, but adequate facilities and

Research and information

resources to undertake certain types of research on its own account. The Authority would have a Research Division. Within this it is possible, for example, to envisage the Safety in Mines Research Establishment as the institutional core of the Authority's safety research organisation, linked with a similar institutional centre for occupational hygiene and medical research. Amongst the possible models drawn to our attention were the Swedish National Institute of Occupational Health (which we visited) and the French Safety Research Institute. With a form of organisation on these lines the Authority would have both its own scientific research capacity and adequate scientific support for its broader role in the promotion and co-ordination of external research. The concentration of expertise that it would represent would in itself inevitably have an influence on the direction of external research in this field.

402. The general issue of the distribution of research funds as between government departments and the research councils is currently a matter of debate following publication of the Rothschild and Dainton Reports.* Whatever the outcome of this debate, our own immediate concern is the absence of any adequate framework at government or any other level for occupational safety and health research. Whether we look at the interested government departments or at the research councils, the subject is too dispersed. Hitherto there has been no single 'customer organisation' in a position to make a proper assessment of research needs in relation to state occupational safety and health services, or indeed to ensure adequate recognition of occupational safety and health as a substantial and integrated research area in its own right. Our proposed Authority for Safety and Health at Work would fill this gap.

Information

403. Occupational safety research is useless unless it influences what happens at workplaces. It is particularly important that the Authority should try to ensure better dissemination of research results as part of an effective general information service.

404. The Department of Employment already publishes a useful series of handbooks in the 'Health and Safety at Work' series, as well as 'Technical Data Notes, the quarterly publication *Accidents*, and other advisory notices and pamphlets. Research reports of such organisations as the Safety in Mines Research Establishment and the industrial research associations contain a great deal of technical information, as do the annual reports published by each of the safety and health inspectorates. RoSPA and the British Safety Council both publish advisory booklets and leaflets, and the independent safety journals are valuable channels for communicating information about occupational safety and health matters.

405. It is apparent that a great deal of research and advisory literature is produced. What is lacking is an effective means of ensuring that the

* *A Framework for Government Research and Development*. Cmnd 4814, HMSO November 1971.

information is always readily available to those who need to know. More central guidance on where to look would be helpful. There is a need for a really comprehensive index which would list and classify current and recent research projects relevant to occupational safety and health, and which would also list relevant publications such as regulations, codes of practice, handbooks and leaflets. The index could be supplemented by a frequently issued broadsheet drawing attention to new research projects and new publications. The new Authority would be well placed to organise the available information and to present it in this co-ordinated way.

CHAPTER 15

STATISTICS

Official statistics

406. Statistics of accidents to employees are published separately—usually in the annual reports of the inspectorates concerned—for accidents notified under the several major safety Acts with which we are concerned. The main sets are those relating to factories, to mines and quarries, to agriculture and to commercial premises. Statistics are also collected and published for accidents involving explosives and petroleum, and there are separate arrangements for collecting statistics of accidents to employees in rail transport, merchant shipping and civil aviation. The main forms of presentation show totals of fatal accidents, and of non-fatal accidents resulting in absence from work for more than three days; and incidence rates of accidents per 1,000 persons employed. (Within industry, frequency rates are often used—in this country they are expressed as the number of lost-time accidents per 100,000 man hours worked.) Various types of analysis by injury-cause, occupation etc. are published from time to time.

407. The statistics can be looked at in two quite different ways. Many people view the published statistics as providing, at the national level, numerical measures of performance, or indices of safety. It is more accurate, however, to view them simply as by-products of the information system designed to produce material for the accident prevention work of the inspectorates. The statistics collected on a national basis derive from a legal obligation to report accidents so that the appropriate enforcing authority can undertake any necessary investigations and can collate the information which it needs for its accident prevention work. The various safety inspectorates need wide-ranging statistical information to enable them to locate problems, identify priorities and plan their work, and here the value of the information obtained depends more on its range and coverage than on its numerical accuracy. Thus the official statistics are derived from information which is useful to the inspectorates, but viewed as a means of informing industry and the public about national safety performance they have a number of defects which we discuss below.

408. Apart from the statistics published by the various safety inspectorates, the Department of Health and Social Security publishes annual statistics of claims made for industrial injury benefit. There is a considerable degree of divergence between the number of industrial injury claims and the number of injuries reported to the safety authorities. For example, Table 2 shows that rather less than half a million industrial accidents were recorded in 1970, whereas DHSS statistics show that 822,000 new claims for industrial injury benefit were made in that year. There are several reasons for this, of which the two most significant are that claims for benefit are sometimes made in

respect of injuries occurring at places not subject to the accident reporting requirements of safety legislation; and that claims for benefit are sometimes made in cases where a legally notifiable accident has not in fact been notified to the appropriate inspectorate.

Criticisms of the official statistics

409. Many of those who made submissions to us expressed considerable doubts about the quality and usefulness of the official statistics of occupational accidents and diseases. These criticisms can be summed up as follows. First, there is no single set of statistics which provides a truly comprehensive picture. The statistics relating to factories, commercial premises, mines and quarries, farms, petroleum installations and so on are published separately by the different collecting agencies. There is no composite publication, and it is difficult to construct one in view of differences in the criteria, classifications and methods used. As a result, public discussion of trends in safety and health at work takes place against a statistical background which is fragmented and incomplete. For the most part discussion centres on one set of figures—the annual figures relating to premises covered by the Factories Act—which by no means covers the whole field.*

410. Secondly, for a number of reasons the official statistics of 'all accidents' are intrinsically unreliable as measures of safety performance. Under-reporting is one factor in this. The results of a survey in manufacturing industry carried out by the Factory Inspectorate suggested that more than a quarter of accidents legally notifiable under the Factories Act are not in fact notified. It is clear, therefore, that secular trends in the statistics may be significantly affected by changes from time to time in the degree of this under-reporting. Another factor is that the operation of the usual criterion for notification—absence from work for more than three days—is subject to influences which have nothing to do with safety performance, i.e. it is affected by changes in social attitudes to, and social provision for, sickness absence. Different individuals react differently to injuries of a similar nature, and our present social organisation is such that the individual has a considerable measure of choice as to whether and how long he will stay away from work following a slight accident. It has been estimated that in manufacturing industry alone there are more than ten million accidents every year which call for some first-aid treatment. Given this, it is clear that slight changes in attitudes to sickness absence can produce very large changes in the number of legally notifiable lost-time' accidents. We take these points, and for these reasons we have very considerable doubts about the usefulness—for the purposes of public information and discussion—of the publication of accident statistics related to short-term absences. More reliable indices of safety performance are provided by statistics of fatalities and of serious injuries which are objectively defined as such by medical evidence. Statistics of severe injuries are collected and published by the Mines Inspectorate, and in 1969 the Factory Inspectorate began to analyse accident trends according to severity of injury. We return to this point later.

* With some difficulty and much help from government departments we have constructed composite tables—see Tables I and 2 in the Tables section of this report. The number of footnotes and references gives some idea of the complexity of the exercise.

411. Thirdly, the system of reporting to the central authorities is unnecessarily burdensome to employers. Probably most accidents involving absence from work for more than three days result in a claim for industrial injury benefit, which means that the employer has to supply information to the Department of Health and Social Security. If the accident is notifiable under safety legislation he has also to supply information about the same accident to the safety inspectorate or department concerned. There are two points here. First, it is wasteful and irksome for employers to have to report the same accident on different forms to different authorities. Secondly, a considerable amount of information about accidents is acquired by the Department of Health and Social Security for benefit purposes which could also be put to use for accident prevention purposes. The Department of Employment suggested in its evidence that more use might be made of material derived from Department of Health and Social Security sources. We were also told that the DHSS and the Factory Inspectorate had been having joint discussions about the possibility of devising a single accident report form suitable for the purposes of both departments. These discussions were started some considerable time ago and appear to have made very slow headway, but a step forward was taken in January 1972 when a pilot scheme was started in a small number of areas in which employers complete one report form in duplicate, sending one copy to the Department of Health and Social Security and the other to the Factory Inspectorate. We understand that the results so far are promising.

improving the official statistics

412. The desirability of placing the various sets of occupational accident statistics on a common footing is generally agreed. The establishment of the proposed Authority for Safety and Health at Work would provide the necessary base from which to tackle this. Clearly the Authority would need to review the existing series of national statistics and to devise a comprehensive system of presentation covering all employment and eliminating existing differences in accident reporting criteria and methods of collation. This would necessarily entail a careful review of the bases of reporting and the purposes of publication. We have already indicated reasons why statistics based on length of absence from work must be interpreted with caution. In comparison, statistics of fatalities and of serious injuries medically defined as such provide more reliable indices of safety performance. In addition to these general considerations we make two specific recommendations:—

- (a) Priority should be given to the task of devising a standard form of accident report suitable for the purposes of both the Department of Health and Social Security and the proposed Authority for Safety and Health at Work, so that employers would need to report an accident only once (see paragraph 411).
- (b) There should be a small but professional statistical unit within the proposed Authority for Safety and Health at Work. We would hope that such a unit would, without putting additional burdens on employers, be able to find ways of meeting the widespread criticism that many of the officially published statistical analyses are inadequate for the purposes of research workers.

Statistics at plant and industry level

413. Whilst it is obviously important that government and the public generally should have some idea of the orders of magnitude of the occupational safety and health problem measured in terms of work injuries, and of overall trends, it has to be recognised that broad statistical information of the kind that appears in the national statistics is of limited practical value. Apart from the reservations already mentioned, the counting of injuries is at best an indirect method of measuring safety, and in practice it is difficult for the safety inspectorates to obtain more than very limited information about accidental happenings which may have considerable significance but which did not result in injury. At the level of the individual firm the application of techniques such as damage control and total loss control, which we mentioned in chapter 2, involve the systematic collection and analysis of data about unplanned occurrences as a basis for management planning for loss reduction and injury prevention. There is great scope within industry for this systematic approach to the assessment of performance and the shaping of preventive policies and measures. A number of industry-level safety organisations are paying increasing attention to the subject, and are seeking to promote amongst their members wider recognition of the practical uses to which better statistical information can be put.

Further statistical research

414. We have already suggested that the proposed Authority for Safety and Health at Work should contain a small but professional statistics unit. This too would help promote recognition of the contribution that modern statistical techniques can make towards the identification and solution of occupational safety and health problems. An important area for further research is the quantitative assessment of accident probability. In the past, the nature and direction of accident prevention measures have been heavily influenced by reactions to the known or potential effects of particular types of accidents. It would appear that, until fairly recently, relatively little sophisticated work had been done on the question of establishing and comparing the probabilities of particular types of accidents. In essence, quantitative hazard analysis seeks to assign a numerical probability to each factor relevant to a particular happening and, by combining these, to arrive at some measure of the probability of an accident taking place. Although considerable difficulties are involved in amassing the necessary data, the approach can be applied at various levels to a wide variety of problems as a contribution towards establishing priorities on an objective and systematic basis. Further research is needed to explore the possible applications of this approach.

Industrial disease statistics

415. The available national statistics relating to industrial diseases are of little help as a means of monitoring current situations or in the identification of newly-emerging hazards. Only a small number of industrial diseases are

Statistics

notifiable under the Factories Act and appear in Factory Inspectorate statistics. A larger number are 'prescribed' as industrial diseases for the purposes of the industrial injuries scheme and appear in DHSS statistics although, as we have seen, the underlying information is not normally used in the consideration of prevention measures. In any event the usefulness for prevention purposes of the information collected is limited, because in many such diseases there are long time lags before cases become manifest and can appear in the statistics. It is difficult to see much scope for useful improvements here. To provide material for research and investigation it would, in our view, be more profitable to concentrate on the development of computerised linkage systems for personal medical records (see paragraph 325).

CHAPTER 16

THE COSTS OF ACCIDENTS

416. The economics of accidents and accident prevention is an important subject, and one that requires further research. During the course of the Inquiry we received many comments about costs. We were frequently reminded that whilst most people have humanitarian feelings about accidents, too few know much about the economic implications for those who are injured, for firms, for industry at large and for the community as a whole. Damage and injuries entail costs, as does accident prevention. Many of these costs can be readily expressed in monetary terms, others are more intangible. Whilst humane considerations will always be predominant, better quantitative knowledge of costs and benefits in this field could contribute towards more informed decision-making. At national level, resources available for accident prevention are not unlimited and it is, therefore, important that they should be used to the best effect. Any increases in expenditure should be applied in such a way as to make the greatest possible impact on accident reduction. The deployment and modes of operation of the various safety inspectorates, the effectiveness of different forms of accident prevention legislation, the value of various methods of safety training, and the overall level of public resources devoted to prevention are all subjects which raise questions of cost-effectiveness.

417. Knowledge of costs and benefits in this field, and the techniques for assessing them, are not well developed. Our experience here has been similar to that of the Royal Commission on Environmental Pollution which, in its First Report, remarked that 'while the broad outlines of a general policy, for protecting the environment are not difficult to discern, the economic information needed to make a proper assessment . . . seems to us to be seriously deficient', and 'where possible, we need an economic framework to aid decision-making about pollution which would match the scientific and technical framework we already have . . . we do feel, that economists could provide a firmer basis for many of the judgements about pollution which we shall need to make and many of the decisions which the Government will need to reach in the near future'.* Much the same can be said about accidents and accident prevention.

418. Costs arise in different ways at different levels, and before they can be usefully discussed it is necessary first to define by whom they are incurred: In considering the economics of industrial accidents and accident prevention, it is necessary to distinguish between costs falling upon the employer, costs falling upon the Exchequer, and the total economic and social costs to the nation. We discuss these briefly in turn.

419. In principle it is not difficult for an employer to calculate the full costs of accidents within his firm. The main elements of these costs—loss of production, damage to plant, investigation costs, liability insurance premiums, etc.—are well known. If accidents can be made to show up clearly on the balance

* *First Report of the Royal Commission on Environmental Pollution*, chapter 4. para. 4585, HMSO 1971.

The costs of accidents

sheet the employer can apply the same management effort and technique to accident reduction as he customarily applies to other facets of his business. Accident prevention can be integrated into the overall economic activity of the firm. Pleas were made to us in written evidence for some kind of standard formula to assist employers to estimate their accident costs in this way. This is not possible because the weight of the various cost-elements will differ between and indeed within industries. More research is needed, and a start has been made. The Soap, Candle and Edible Fat Trades Employers' Federation has estimated that the cost of a lost-time accident in the industry varies in a range between £50 to £350. The Shipbuilding Industry Training Board estimated that accidents in shipbuilding cost the industry £9 million annually. The Forestry Commission estimated that accident costs in forestry amounted to £52,000 in 1969. But there is little value in inter-industry comparisons unless the same cost-items are being compared and the costs are expressed in a comparable form. We believe that the various industry-level associations and the CBI are well placed to conduct research into this subject, and that they can do much to spread the message that the economic return from accident prevention is one that employers cannot afford to overlook. By way of illustration we reproduce at Appendix 9 a costing formula published by the Engineering Employers' Federation, and a note on accident costs in coalmining.

420. By no means all of the costs of industrial accidents are borne by the victims and their employers. Clearly the costs of industrial accidents to the Exchequer are of interest and significance to the taxpayer. The Exchequer makes a contribution to the Industrial Injuries Fund and bears the bulk of the costs of medical and after-care services for the injured. The Exchequer also bears the costs of the state's accident prevention activities. We have obtained estimates of current costs of occupational safety and health activity by government departments—amounting in total to about £11 million annually—and we reproduce these at Appendix 10. As we have said, any changes in the make-up or general level of these expenditures raise questions of cost-effectiveness. It has to be recognised that these questions are not simple ones. It is one thing to calculate the costs to public resources of various types of safety activity; it is quite another to attempt precise evaluations of the degrees of success achieved by these activities, since amongst other things this entails making highly speculative assumptions about the degree to which changes in accident figures can be attributed to particular preventive policies and measures. Nevertheless, the attempt is worth making, if only for the illumination it can shed on issues that might otherwise be overlooked and upon assumptions that need to be tested. There is no evidence that much serious study along these lines has been attempted by the government safety inspectorates and departments.

421. Finally, estimates can be made of the total costs of occupational accidents to the nation. Knowledge of these costs may be of limited practical value, but it is clearly desirable to have some idea of their order of magnitude. Their calculation poses difficult conceptual and practical problems, and there is considerable room for argument about what should be taken into account and how. For example, what cognisance should be taken of subjective costs such as suffering and bereavement, and how should they be assessed? Confusion sometimes arises because of failure to distinguish between private costs and

national costs. Thus to an employer the cost of a fatality in terms of lost output ceases when the worker is replaced; but in terms of the national economy the worker is irreplaceable and a valid calculation of the output loss must include a projection into the future. Or to take a different kind of example, an employer's liability insurance premiums are a real cost to him but do not represent a national resource loss.

422. Many estimates of total costs to the nation were put to us in evidence, ranging from £200 million to £900 million annually. The validity of the bases of calculation were usually very much open to question, a fact which reflects the limitations of present knowledge and technique in this subject. As a contribution to discussion, we reproduce in Part III of Appendix 9 a note on the calculation of the costs of occupational accidents in national resource terms.

423. We recommend that the Research Division of the proposed Authority for Safety and Health at Work should be suitably equipped to pursue research into the economics of accidents and accident prevention. This should be done with a view to developing a more cost-effective approach to the deployment of public resources for accident prevention, as well as to provide an additional base for encouraging and assisting similar work by industry-level organisations and individual firms. In general we think it important that the Authority should seek to promote a wider interest in, and knowledge of, the subject.

CHAPTER 17

COMPENSATION AND PREVENTION

424. Prevention and compensation are two sides of one problem. Most people would say that prevention should be the first consideration. In practice, the situation in this country is such that wherever there is a degree of conflict between the development of better accident prevention provisions on the one hand, and compensation principles and procedures on the other, it is the latter which appear to dictate what can be done. Our Inquiry was set up to examine the statutory and voluntary arrangements for the prevention of accidents and ill-health at work. The terms of reference did not extend to the matter of compensation for injuries and we had, therefore, no mandate for enquiring into the efficiency and equity of the present compensation arrangements in this country. Nevertheless, we found it impossible to ignore the interplay between the compensation arrangements and the accident prevention arrangements, and the evidence of the unfortunate feedback effects from the former to the latter.

425. A great many organisations and individuals concerned with accident prevention raised this matter with us and many strong views were expressed. Two main themes run through these representations.. The first is that the present system of civil actions for damages for industrial accidents, whatever its other merits or demerits, has an inhibiting and distorting effect on the work of making and enforcing effective regulations to prevent accidents, and indeed on the accident prevention effort generally. Secondly, insurance against liability to pay compensation for injury is basically inimical to the accident prevention effort because the principle of 'spreading the risk' tends to leave the negligent employer little or no worse off financially than the employer who puts a great deal of effort into his safety organisation. We give Belo* some views on the main arguments which have been advanced, taking in turn the two main systems for the provision of compensation to the victims of accidents at work—the statutory system and the common law system.

The statutory industrial injuries scheme

426. Virtually every employee in this country is covered by the comprehensive scheme of insurance against industrial injury administered by the Department of Health and Social Security. The present scheme follows broadly the pattern laid down in legislation introduced in 1946 as part of the social security provisions made following the Beveridge Report.* It replaced the old Workmen's Compensation system which had been criticised as failing to afford complete security for the payment of compensation to injured workers and also because the system rested in the last resort upon the threat of litigation. The National Insurance (Industrial Injuries) Act 1946 removed liability to pay statutory compensation from the individual employer, and provided for statutory benefits to be paid out of a central fund maintained by contributions from employers, employees and the state. Employer and employee

* *Social Insurance and Allied Services*. Cmd 6404, HMSO 1942.

contributions are collected along with the national insurance contributions at flat per-capita rates. In the financial year 1970/71 payments into the Industrial Injuries Fund totalled £128.1 million, of which £109.3 million was paid out in benefits. The balance in the Fund on 31st March 1971 was £352.4 million.*

427. The scheme provides benefits, without regard to fault, for employees who are incapacitated or disabled because of an industrial accident or one of the prescribed industrial diseases. The general pattern is for injury benefit—the rates of which are rather higher than the rates of sickness benefit—to be paid for a maximum period of 26 weeks. Thereafter sickness benefit or invalidity benefit may be payable. Where there is a loss of physical or mental faculty, disablement benefit may be payable whether or not the person concerned is able to work. A person receiving benefits under the scheme is not precluded from claiming damages at common law against his employer, but the amount of damages awarded may be reduced by half the amount of sickness, injury and disablement benefit payable in the period of five years from the date of the accident.

428. As we have said, a constant theme during the course of our Inquiry was that the insurance principle has the effect of reducing the incentive to take positive accident-prevention measures. Applying this to the statutory industrial injuries scheme, the fact that employers contribute to the Industrial Injuries Fund at flat rates means that negligent employers are no worse off, so far as the burden of contributing to the Fund is concerned, than those who reduce risks by putting great effort into their safety organisation and preventive measures. Although Lord Beveridge did not advocate differential rates of contribution for individual employers, he did think that there should be a higher rate of contribution in the hazardous industries. In his Report he wrote that 'it is as just and as socially desirable that part of the risk of industrial accidents and disease should be borne separately by the employers in each industry, on the ground that part is within their control, as it is that part of the risk should be pooled on the ground that some accidents are inevitable'. However, his proposal for a special levy in particularly hazardous industries was rejected by the Government of the day.

429. There are arguments for and against a system of differential contribution rates. On the one hand a flat rate scheme is obviously easier to administer, and the fairness of taking amounts paid out in benefit as some kind of negative reflection of accident-prevention effort is very much open to debate. On the other hand, whilst a highly differentiated scheme might well be costly to administer, it should be possible to devise a reasonably simple system under which only those employers with relatively very good or very bad records would pay rates different from the norm; and whilst claims records may provide only a very crude measure of safety effort it can be argued that they are a reasonable index of the sources of actual accident costs to the community. In any event the overseas experience which we discuss later in this chapter suggests that schemes providing for variable contribution rates are perfectly feasible, and they have the very considerable merit of providing a tangible incentive to

* *National Insurance and Industrial Injuries Fund Accounts 1970-71*. H.C. 110/1971-72, HMSO 1972.

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stimulate the attention of individual employers to their safety and health organisation. We make a specific recommendation about this matter at the end of this chapter.

Damages for injuries suffered at work

430. The other main element in the present compensation arrangements is the common law action for damages. There are many such actions. Statistics quoted in Appendix 5 of the Winn Report* indicate that industrial accident cases account for almost half of the non-matrimonial civil actions litigated in the High Court (QBD). This is, of course, only the tip of the iceberg, since the majority of claims—probably 90% or more—are in fact settled out of court.

431. Unlike a claim for benefit under the statutory industrial injuries scheme, an action for damages offers the possibility of the award of a large lump sum. That apart, the fundamental difference of principle between the statutory scheme and civil litigation is that under the former, benefits for industrial injuries are payable without regard to fault. In the action for damages, proof of fault or negligence is crucial. Where, however, an accident is found to be the result of a breach of an employer's statutory duty (such as his duty to ensure that his machinery is securely fenced), the employer's liability is likely to be strict, and instead of proving negligence the plaintiff need only prove a factual departure from the statutory standard. In many cases the injured employee can allege both common law negligence and breach of statutory duty as alternative bases of his claim.

432. The efficiency and equity of the system as a means of providing compensation has been heavily criticised. For example, T. G. Ison argues in his well known critique^t that 'liability for negligence is a capricious and unsatisfactory method of compensating the victims= of injury or disease . . . the distribution of losses and the financial destiny of the victim and his family depend on a series of chance factors interacting to produce results in each case that depend very largely on sheer luck', and that 'the cost of administering the system is so high that the burdens of liability are roughly double the benefits of compensation'. Professor P. S. Atiyah's recent book discusses at length the various legal mechanisms involved and argues that the tort system is inefficient, expensive to operate and provides damages to less than 10% of industrial injuries victims. ^f Indeed, in a speech published in 1965 (relating to road traffic accidents) the then Lord Chief Justice acknowledged some of the defects of the tort system and suggested that consideration should be given to form of comprehensive insurance in place of the right of action for damages in respect of road traffic accidents. This was followed by Parliamentary pressure for the establishment of a Royal Commission to examine the whole question.

433. It is no part of our task to try to explore the legal complexities which

* *Report of the Committee on Personal Injuries Litigation*. Cmd 3691, HMSO 1968.

^t *The Forensic Lottery* by Terence G. Ison, Staples Press, 1967. Quotations. reprinted by kind permission of the publishers.

^f *Accidents, Compensation and the Law* by P. S. Atiyah, Weidenfeld & Nicolson, 1970.

surround the action for damages for personal injury; nor is it within our terms of reference to pursue these criticisms of the system as a method of compensating the victims of industrial or other accidents. Our attention has, however, been drawn very strongly to the way in which the system operates to the detriment of the accident-prevention effort. These criticisms can be summed up as follows.

434. First, the task of framing sensible and effective statutory provisions for the prevention of accidents is made much more difficult than it need be. This is because employer organisations, trade unions and others who must be consulted, inevitably and understandably tend to be concerned as much with the implications of such provisions in the compensation field as about their potential efficacy as means of preventing accidents. The general psychological effect is that attention is diverted from the primary objective of accident prevention to the altogether different question of compensation for injury suffered. This shows up, for example, in the constant pressure for extremely precise and detailed statutory regulations which, as we have seen in earlier chapters, leads eventually to a body of law which has serious limitations when viewed as a contribution to its primary purpose of accident prevention.

435. Secondly, another result of utilising the same body of law for two quite different purposes is that the task of those who have to maintain and enforce the statutory provisions for accident prevention is made more complicated. The accident prevention regulations are subjected to intense scrutiny and argument by contending parties in civil proceedings. In paragraph 130 we remarked that judicial interpretations in compensation cases have from time to time created (or exposed) problems in the application and scope of particular accident prevention regulations. For the most part, legal interpretation of the regulations takes place in the context of civil litigation for compensation, and there are a number of cases where these interpretations have appeared to conflict with the intentions of the authorities responsible for framing and enforcing the accident prevention provisions. Some examples are quoted in Appendix 7.

436. Thirdly, the speedy and co-operative investigation of particular accidents is impeded. Such investigations should be geared to the aim of ensuring that the same kind of accident does not happen again. However, with the possibility of litigation in the background the advisers of the parties concerned are more likely to be preoccupied with the question of legal fault than with the broader questions of why the accident came about and how it could have been prevented. In written evidence the Department of Employment said that 'In the experience of the Department the possibility of claims for damages sometimes hampers enforcing authorities in investigating the circumstances and causes of accidents or dangerous occurrences. This happens because those concerned, whether managers or workers, are more inhibited than they might otherwise be in disclosing what happened, who was doing what, what the works instructions were, etc.' We heard many similar comments.

437. Fourthly, although the same body of statutory law is used both for accident prevention purposes and as a basis for actions at common law, there is no positive and constructive connection between the two systems. In this

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respect the position is quite different in some overseas countries, and we have more to say about this in paragraphs 442-446. It has been put to us that common law litigation has acted as a spur in the accident prevention field in that the publicity surrounding certain cases has stimulated widespread interest in and attention to particular safety and health problems. We take this point, which appears to us to have some force; but that apart it is very difficult to find any evidence that the system contributes much of direct value to accident prevention (particularly in view of liability insurance, which we discuss below), whereas there is much evidence in the other direction.

438. Fifthly, the system is costly, and the money spent on litigation would be better devoted to accident prevention. Finally, it might be argued that there is a case for tolerating these difficulties for the sake of preserving a system which, whatever its other effects, ensures that adequate and equitable compensation is paid to those injured at their work. As we have seen, however, there is a vocal body of opinion which asserts that the system does no such thing. We have considered all of these criticisms very carefully, and at the end of this chapter we give our views on what should be done.

The role of insurance

439. We have discussed above the operation of the insurance principle in the context of the statutory industrial injuries scheme. Somewhat similar considerations arise in relation to insurance against liability for injury damages. With the spread of liability insurance—recently reinforced by the Employers' Liability (Compulsory Insurance) Act 1969 which came into effect in January 1972—common law damages are almost never paid by the person liable at law for the injury. Nor is much hard evidence available to indicate that liability insurance premiums paid by individual employers—as distinct from the general level of such premiums—are adjusted to any very significant extent in the light of claims experience. The British Insurance Association said in written evidence that 'where sub-standard risks are involved or there is a higher than normal incidence of claims, increased premiums are charged and there is consequently an incentive for an employer to improve safety measures', but they also said that 'broadly speaking, the system of employers' liability rating is not designed to be a major incentive to the adoption of safe working practice . . . a rate of premium charged for any particular risk is based primarily on the collated claims experience of that class of risk . . . a rate of premium based on the class experience will, however, be subject to modification for sufficiently large individual risks, reduced if the claims experience is better than average, increased if it is worse'. We received little factual information, but very many conflicting statements of view, as to how this works out in practice. We do not feel able to say more about it than that the competitive nature of the insurance market must limit the scope for premium-rating penalties or incentives.

440. In general, our impression is that the direct contribution of the insurance companies to good safety and health performance lies more in the field of insurance against damage to premises, plant and equipment. Not only do variable premiums appear to be more extensively used in this area—for example lower fire premiums can be obtained where an employer provides certain fire protection standards and equipment—but various types of direct

preventive activities are undertaken. For example, engineer surveyors employed or commissioned by the engineering insurance companies undertake statutory inspections of equipment such as boilers, pressure vessels, cranes and electrical equipment, and are a source of much valuable information to the Factory Inspectorate. Some insurance companies employ specialist staff to survey premises and plant and to recommend precautions as a condition of providing insurance cover, and in general the larger companies appear to be paying increasing attention to risk management, impressing upon their industrial customers the need to reduce risks rather than merely to insure against them.

441. It is apparent, therefore, that in some areas the insurance industry is making a valuable contribution towards higher standards of safety and health at workplaces. Nevertheless, we suspect that considerable room remains for developing further ways and means of counteracting the disincentive effect of the basic principle of 'spreading the risk'. In any event, we think that there is much scope for fruitful discussion between the insurance industry and our proposed Authority for Safety and Health at Work, and we suggest that careful consideration should be given to ways of establishing a regular dialogue between the two. The British Insurance Association told us that they would welcome more contact along these lines.

Overseas experience

442. It is, we think, helpful to look at the way in which some overseas countries have approached these problems. We cannot claim to have made a detailed study of overseas systems, but a number of examples seem to us worthy of much closer examination.

443. In France, the Social Security Caisses have accident-prevention and insurance functions. The industrial injuries insurance scheme is financed entirely by contributions from employers, and the contribution rates vary according to the accident record of the industry and, in the case of large firms, of the individual firm. In Germany, the Berufsgenossenschaften also combine accident-prevention functions with the administration of compensation for occupational injury and ill-health. There are 36 Berufsgenossenschaften organised on an industry basis and run by joint committees consisting of equal numbers of employers' and employees' representatives. The compensation funds are financed by employer-contributions which vary according to the nature of the industry and, within each industry, according to the performance standard of individual firms. Firms with poor records may pay up to four times the basic rate of contribution. Injury benefits amounting to two-thirds of normal earnings are paid without regard to fault.

444. Workmen's compensation in Canada is legislated and administered by the Provinces. We take two examples, British Columbia and Ontario. The Workmen's Compensation Act of British Columbia provides compensation for accidents at work and industrial diseases in lieu of any right of action which may have existed at common law. Compensation benefits are adjusted automatically with movements in the retail price index. The fund is financed by contributions from employers which are determined by reference to the claims experience of the industrial classification in which the employer is assessed. In

two of the industrial group classifications, firms are individually rated. The scheme is administered by the British Columbia Workmen's Compensation Board. This has three Divisions dealing respectively with claims, with rehabilitation and with accident prevention. The latter includes research, hygiene and inspection branches. The Ontario Workmen's Compensation Scheme is similar in that employer contributions are assessed according to the claims record of the particular industry group. There are also provisions for individual contribution rating within an industry group, and two groups have adopted this arrangement. A feature of the Ontario scheme is the provision whereby the Workmen's Compensation Board can impose heavy penalty-assessments on firms with poor records. If such a firm agrees to remedial action as directed by the Board, the penalty is not collected.

445. In New Zealand, a Royal Commission was appointed in 1966 to report on the law concerning compensation and claims for damages for accidents and diseases suffered by persons in employment. In its Report* the Commission dealt with the whole field of personal injury from accidents, and not only with injury to employed persons. It criticised the existing compensation arrangements, and particularly the civil action for damages. It said that the adversary system hindered rehabilitation after accidents and could play no effective part beforehand in preventing them. As a basis for compensation the fault-principle was erratic and capricious in operation, and its effect was to produce complete indemnity for a relatively small group of injured persons, and little or nothing for the rest. The system was cumbersome, inefficient and extravagant in operation. Administration and other charges absorbed \$40 for every \$60 paid out to successful claimants. The Commission recommended that it should be replaced by a unified and comprehensive system of accident prevention, rehabilitation and compensation. The Report was followed by publication of a commentary by the 'Government' and subsequently by the Report of a Select Committee of the New Zealand House of Representatives. I

446. In December 1971 an Accident Compensation Bill was introduced in the New Zealand Parliament. The Bill proposes fundamental changes in the law governing the compensation of those who suffer personal injuries by accident. It covers all earners and those injured in motor accidents. In place of remedies at common law, all employees and self-employed persons who suffer personal injury through accidents will be entitled without proof of negligence to compensation equivalent to 80% of normal earnings. In addition there is provision for lump sum payments for loss of faculties. Administration of the scheme will be in the hands of a new statutory authority, the Accident Compensation Commission, which will also have the duty of promoting accident prevention and the medical and vocational rehabilitation of injured persons. The Commission will fix the levies payable under the Act by employers. The intention is to have differential rates of contribution for classes of industries and occupations. This follows the Select Committee's view that differential

* *Compensation for Personal Injury in New Zealand* (the Woodhouse Report). New Zealand Government Printer, 1967.

† *Personal Injury: A Commentary on the Report of the Royal Commission of Inquiry into Compensation for Personal Injury in New Zealand*. New Zealand Government Printer, 1969.

‡ *Report of a Select Committee of the New Zealand House of Representatives on Compensation for Personal Injury in New Zealand*. New Zealand Government Printer, 1970.

rates should provide useful incentives towards better accident prevention efforts. The Commission will also be able to consider the imposition of individual levies, increased where accident records are worse than average, and reduced where they are better than average. A brief description of the purposes and content of the legislation, as contained in a press release issued by the New Zealand High Commission, is reproduced at Appendix 11.

Recommendations

447. We- have two main recommendations to make on this subject. First in relation to the discussion in paragraphs 426-429 above, we recommend that the Department of Employment and the Department of Health and Social Security should quickly put in hand a detailed study of the possibility of amending the present statutory industrial injuries scheme so as to provide for differential rates of employers' contributions based on claims experience, taking into account experience of the operation of such schemes in other countries.

448. Our second recommendation is of a longer-term nature. We think that there is a very strong case for a thorough review of the present system of actions at common law for compensation for injuries sustained at work, with particular reference to the effects of the system upon accident-prevention provisions and arrangements. In chapter 5 of this report we have recommended that in the promotion of occupational health and safety more emphasis should be placed in future upon the use of non-statutory codes and standards, partly in supplementation of and partly in place of statutory regulations. This is one of our fundamental recommendations, and as it could have considerable implications for those involved in damages actions it strengthens the case for a review of the present system of compensation at common law.

449. We are not unaware of the difficulties. An Inquiry on this subject could hardly be limited to the question of compensation for accidents at work. It would no doubt have to take into account civil compensation for personal injury generally, as well as the existing statutory scheme of insurance against industrial injuries. Indeed, it is difficult for outsiders to identify the government department which should play the leading role in pursuing the matter. We suspect that this difficulty also exists within the Whitehall machine and is an obstacle to action. The Department of Employment, and the proposed Authority for Safety and Health at Work, would obviously have a major interest in the accident-prevention aspects. The Department of Health and Social Security would also have a major interest in view of its responsibilities for administering the statutory industrial injuries scheme. The interest of the Government legal departments and such bodies as the Law Commission is self-evident. We received written and oral evidence from the Law Commission, which has not obtained approval for including in its programme an investigation into the principles governing liability for accidents resulting in personal injury.* We

* See paragraph 2 of *Law Commission Working Paper No. 32*. HMSO 1970. We also note that the Winn Committee (see paragraph 430) which examined the jurisdiction and procedure of the courts in actions concerning personal injuries, was precluded by its terms of reference from considering whether the system should be replaced by a comprehensive system of insurance. In a note of reservation, one of the members of the Committee suggested that 'one of the most fundamental problems that calls for solution in the near future is whether [personal injury] litigation should be replaced by some comprehensive system of compensation for personal injury by accident without proof of fault'.

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also received some information from the Lord Chancellor's Office about suggestions made in recent years for a review of the law relating to compensation for personal injury, but were told that 'in view of the very wide-ranging implications of such proposals, further governmental action on them would need to be justified by a greater measure of public discussion and support than they have yet attracted'. The Office did not think that it could usefully give oral or written evidence to the Committee.

450. The suggestion for a thorough inquiry into this subject is not a new one, and it has been supported by, amongst others, the CBI and the TUC. There appears to be a log-jam in its path which we consider ought to be broken in the interests of better accident prevention. The first requirement is a clear decision by Ministers. At this stage we can do no more than recommend very strongly that such an Inquiry should be set up, and that it should be constituted in such a way as to ensure that it can take full account of the broad social policy aspects of the matter as well as the technical legal aspects.

CHAPTER 18

SUMMARY

451. In our preface we drew attention to the fact that the various topics within our terms of reference are heavily interrelated, and that the nature of the solution to one problem tends to depend upon the nature of the solutions adopted for others. We begin this final chapter of our report with a short general summary of the essence of our proposals, followed by a rather more detailed—but by no means exhaustive—chapter by chapter summary.

General summary

452. We need a more self-regulating system of provision for safety and health at work. The traditional approach based on ever-increasing, detailed statutory regulation is outdated, over-complex and inadequate. Reform should be aimed at creating the conditions for more effective self-regulation by employers and workpeople jointly.

453. The efforts of industry and commerce to tackle their own safety and health problems should be encouraged, supported and supplemented by up to date provisions unified within a single, comprehensive framework of legislation. Much greater use should be made of agreed voluntary standards and codes of practice to promote progressively better conditions.

454. This broader and more flexible framework would enable the statutory inspection services to be used more constructively in advising and assisting employers and workpeople. At the same time it would enable them to be concentrated more effectively on serious problems where tighter monitoring and control might be needed.

455. A single centre of initiative is needed to replace the present heavily-fragmented administrative arrangements. A national Authority for Safety and Health at Work should be established.

Chapter summary

456. Chapter 1—What is wrong with the system? The toll of death, injury, suffering and economic waste from accidents at work and occupational diseases remains unacceptably high. New hazards and problems are emerging. Apathy is the greatest single obstacle to progressive improvement; it can only be countered by an accumulation of deliberate pressures to stimulate more sustained attention to safety and health at work.

457. There is a lack of balance between the regulatory and voluntary elements of the overall 'system' of provision for safety and health at work. The primary responsibility for doing something about present levels of occupational accidents and diseases lies with those who create the risks and those who work

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with them. The statutory arrangements should be reformed with this in mind. The present approach tends to encourage people to think and behave as if safety and health at work were primarily a matter of detailed regulation by external agencies.

458. Present regulatory provisions follow a style and pattern developed in an earlier and different social and technological context. Their piecemeal development has led to an haphazard mass of law which is intricate in detail, unprogressive, often difficult to comprehend and difficult to amend and keep up to date. It pays insufficient regard to human and organisational factors in accident prevention, does not cover all workpeople, and does not deal comprehensively and effectively with some sources of serious hazard. These defects are compounded and perpetuated by excessively fragmented administrative arrangements.

459. A more effectively self-regulating system is needed. Reform should be aimed at two fundamental and closely related objectives. First, the statutory arrangements should be revised and reorganised to increase the efficiency of the state's contribution to safety and health at work. Secondly, the new statutory arrangements should be designed to provide a framework for better self-regulation.

460. Chapter 2—Safety and health at the workplace. Safety and health activity at the workplace needs a central focus. Employers should be required to set out written statements of their safety and health policy and provisions. These statements should be made available to all employees.

461. Within firms, safety and health objectives and responsibilities should be clearly defined at the level of the boardroom, middle management, safety advisers, supervisors and operatives; and systematic prevention techniques should be employed.

462. Safety and health at work is a matter of efficient management. But it is not a management prerogative. Workpeople must be encouraged to participate fully in the making and monitoring of arrangements for safety and health at their place of work. There should be a general statutory obligation on employers to consult with their workpeople on measures for promoting safety and health. Guidance on methods of consultation and participation should be provided in a code of practice.

463. Annual reports of registered companies should be required to include prescribed information about accidents and occupational diseases suffered by the company's employees, and about preventive measures taken by the company.

464. Chapter 3—Action at industry level. Industry-level organisations, with their knowledge of the special problems of their own industries, have an extremely important part to play in the promotion of safety and health at work. A better mechanism is needed for linking up the efforts of the industry-level safety bodies with the work of the statutory services.

465. There is scope for more collaboration between the CBI and TUC on this subject. Both should devote more resources to the promotion of safety and health activities by employer associations and trade unions.

466. Chapter 4—A new statutory framework. A national Authority for Safety and Health at Work should be set up. Present safety and health legislation dealing separately with factories, mines, agriculture, explosives, petroleum, nuclear installations and alkali works should be revised, unified, and administered by the new Authority.

467. The Authority should have a distinct, separate identity, with its own budget, and full operational autonomy under the broad policy directives of a departmental Minister. It should have a comprehensive range of executive powers and functions. Statutory provisions formulated by the Authority should be laid before Parliament by the sponsoring Minister.

468. The Managing Board of the Authority should be composed of people drawn from relevant fields of experience and interest, so that the Authority can be seen as institutionalising a new policy for greater self-government in this field.

469. Chapter 5—The form and content of new legislation. The existing statutory provisions should be replaced by a comprehensive and orderly set of revised provisions under a new enabling Act. The new Act should contain a clear statement of the basic principles of safety responsibility. It should be supported by regulations and by non-statutory codes of practice, with emphasis on the latter.

470. A determined effort should be made to revise, harmonise and up-date the existing large body of detailed statutory regulations, to simplify their style and to reduce their number. A simplified consultation procedure is recommended.

471. As a general rule, voluntary standards and codes of practice provide the most flexible and practical means of promoting progressively better (rather than minimum) conditions of safety and health at work. In future, they should be used more extensively in supplementation of—and wherever possible in place of—statutory regulations. This change in emphasis should be accompanied by arrangements for increasing the impact and effectiveness of such standards and codes. Voluntary standards and codes approved by the Authority should be taken into account in inspection work and should be admissible in evidence in enforcement proceedings.

472. Statutory regulations and approved voluntary codes and standards should be kept under constant review with the assistance of an Advisory Committee on Regulations and Codes. Expert technical working parties should be established ad hoc to undertake the detailed work.

473. Chapter 6—The application and scope of new legislation. The scope of the new legislation should extend to all employers and employees, except for a limited range of specific exclusions.

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474. The scope of the new legislation should also extend to the self-employed in circumstances where their acts or omissions could endanger other workers (employed or self-employed) or the general public.

475. The legislation should not apply to the normal use of the highway, to domestic service, or to transport workers whilst actually engaged in transport operations. Special provision is needed for hospitals, schools and other educational establishments, and research laboratories.

476. Chapter 7—The inspectorates. The existing separate safety and health inspectorates for factories, mines, agriculture, explosives, nuclear installations and alkali works should be amalgamated to form a unified service within the new Authority. As a matter of explicit policy, the provision of expert and impartial advice and assistance to industry should be the basic function of the unified inspectorate. At the same time, tighter control over serious problems should be exercised through the more effective deployment and use of inspection personnel.

477. Present inspection activities are too widely dispersed, and depend too much on routine visitation. The attempt to watch over everything means that the more serious problems may get less attention than they deserve. The resources of the inspectorates should be used more selectively. They should be concentrated on those areas where they are most needed and most likely to be effective. Priorities should be established by systematic appraisal and planning.

478. This problem-oriented approach calls for a field structure of about 30 or so large Area Offices, each providing a wide range of skills and expertise corresponding to the needs of the particular area.

479. Chapter 8—Inspection by local authorities. Local authorities have a very important part to play. Their work should be more effectively co-ordinated and integrated with the work of the Area Offices of the new national Authority.

480. Chapter 9—Sanctions and enforcement. Where the pressure of sanctions is needed to ensure rectification of unsatisfactory conditions, a range of alternatives should be available to the safety and health inspector. In the majority of cases, administrative sanctions of a constructive nature are to be preferred. These should take the form of Improvement Notices and conditional Prohibition Notices issued by inspectors and subject to appeal before industrial tribunals. Higher fines should also be provided for.

481. Chapter 10—Public safety. The new legislation should be so formulated as to ensure that the interests of the public as well as of employees are taken fully into account in measures dealing with hazards at workplaces. Special arrangements are needed to ensure adequate control over large-scale hazards to the public.

482. Chapter 11—Additional comments on particular topics. *General fire precautions* applicable to workplaces should be dealt with under the Fire Precautions Act, with enforcement based on the issue of fire certificates by the fire authorities. Special fire safety provisions against particular process risks should be made under the legislation administered by the Authority for Safety and Health at Work. Arrangements should be made for close liaison between the local fire authorities and the Area Offices of the central Safety Authority (paragraphs 311-317).

483. The Authority for Safety and Health at Work should administer comprehensive provisions dealing with *explosive and flammable substances*. There should be a special 'major hazards' unit within the unified inspectorate, and guidance from a standing Advisory Committee on Explosive and Flammable Substances (paragraphs 318-321).

484. There should be comprehensive powers of control over *toxic substances*, allied to a general statutory obligation on manufacturers to ensure adequate safety testing of new substances before marketing them for industrial use. Anyone marketing a new chemical or other potentially harmful substance for industrial and commercial use should be required to supply basic information to the Authority for consideration by a standing Advisory Committee on Toxic Substances (paragraphs 322-333).

485. There should be an institutional link between the new Authority and the National Board for Radiological Protection (paragraphs 334-339).

486. Basic requirements on *noise control* should be included in the new legislation. Within the unified inspectorate there should be a specialist branch dealing with noise (paragraphs 340-345).

487. There should be a general statutory obligation to ensure that *plant, machinery and equipment* manufactured for industrial and commercial use is designed and constructed to comply with safety requirements; and powers to require compliance with particular standards and approval arrangements established by independent quality control bodies (paragraphs 346-354).

488. Chapter 12—The organisation of occupational medicine. The new Employment Medical Advisory Service should function as part of the Authority for Safety and Health at Work, and should maintain close operational liaison with the National Health Service.

489. Chapter 13—Training. The new Authority should play a promotional and co-ordinating role in safety training. It should actively participate in some neglected areas such as safety training in management courses. New legislation should contain broad powers for making regulations on safety training.

490. Chapter 14—Research and information. The Authority should seek to promote a more co-ordinated research effort in occupational safety and health. It should have an adequate research capacity of its own, and powers to

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sponsor and support relevant external research. It should seek to ensure better dissemination of research results as part of an effective general information service.

491. Chapter 15—Statistics. The new Authority should review the bases and purposes of the statistics currently published. Priority should be given to the task of devising a common report form so that employers would need to report an accident only once.

492. Chapter 16—The costs of accidents. Study of the costs of occupational accidents has been relatively neglected. The new Authority should be suitably equipped to pursue research into costs and benefits in order to assist the development of a more cost-effective approach to the deployment of public resources for accident prevention, as well as to encourage and assist similar work by industry-level organisations and individual firms.

493. Chapter 17—Compensation and prevention. There should be a detailed study of possible ways of amending the statutory industrial injuries scheme so as to provide for differential rates of contribution from employers, based on the claims experience of their employees.

494. There should be an Inquiry into the present system of actions at common law for damages for injuries sustained at work, with particular reference to the deleterious effects of the present system upon accident-prevention provisions and activities.

CHAPTER 19

PROGRAMME OF ACTION

495. If our recommendations are accepted, their implementation will be a very formidable legislative, administrative and organisational task. A great deal of complex work and careful planning will be necessary. We have already pointed to the difficulty of making progress where so many government departments are affected and involved. To begin by submitting our proposals to the normal processes of detailed inter-departmental consultation would simply be to lose them in the very maze we have sought to unravel. We would therefore suggest a programme of action on the following lines.

496. First stage. The immediate need will be for broad decisions in principle at the political level. One Minister—presumably the Secretary of State for Employment—will need to be given clear authority to undertake the task of implementation within the broad policy decisions taken by the Government.

497. Second stage. The Minister would no doubt begin by drawing up proposals for legislation in the form of an enabling Bill on the lines discussed in chapter 5. The Bill would include provisions establishing the Authority and defining its powers and functions. Simultaneously, administrative action could be taken to bring the inspectorates and other personnel concerned together under the Minister responsible for preparing the Bill. In any event early integration of at least some of the staffs concerned will be essential for preparing the legislation and for preliminary planning towards stage three.

498. Third stage. Given advance organisational preparation as indicated above, the new Authority should be able to become operative as soon as the enabling Bill becomes an Act. At first, however, it would be administering mainly the existing provisions contained in and under the present statutes (see chapter 4) pending their revision and replacement by regulations under the new Act. As we have indicated, a great many of the existing statutory provisions need to be revised, and we have recommended extensive rationalisation and pruning to produce a smaller body of regulations of a simpler type, together with much greater use of approved codes of practice. Complete revision of the existing statutory provisions will be a very formidable task, and there will be a difficult transitional period whilst they are being gradually revoked and replaced. As we see it, in each of the various areas of the overall field the existing provisions will continue in force until, area by area, they can be replaced by revised provisions (in the form of regulations and/or codes of practice) which satisfactorily cover the needs of the situation. It is obviously important that momentum should not be lost during this third stage. Special project groups could perhaps be set up to tackle the various sectors of this work, and a firm target—perhaps one year from the date of enactment of the main statute—should be set for completion.

Programme of action

499. Thereafter, the task will be a continuing one. Many problems will remain to be solved, and fresh ones will arise. The new framework that we have proposed will need to be kept flexible, and adapted to meet changing requirements. In the long run, the most essential need will be for sustained interest and initiative.

* * * * *

500. In our preface and elsewhere we have acknowledged many debts. One more remains to be recorded. Throughout the Inquiry we benefited greatly from the marked ability of our secretary, Mr. Matthew Wake. It was soon apparent that he possessed an ideal personality and an outstanding aptitude for this type of work. His quick and intelligent grasp of problems, and ability to distil the important issues from the great weight of evidence we received, helped to lighten and indeed to shorten our labours. Not least he displayed a fine drafting skill. His work was complemented by the backing and unsurpassed enthusiasm of our assistant secretary, Mr. Charles Neale. No one could have immersed himself more deeply in our subject. They were helped by Mr. Norman Ashworth, Miss Mary Lord, Mrs. Anita Heldt and Miss Rose Paton, a small and unassuming team providing the sort of service that can so easily be overlooked because of its quiet efficiency. We owe them all a great deal.

TABLES

TABLE 1

FATAL ACCIDENTS AT WORK IN GREAT BRITAIN 1961-1970
(The table relates to employees only)

	1961	1962	1963	1964	1965	1966	1967	1968	1969	1970
1. Factories	368	351	332	344	358	372	342	359	357	325
2. Docks and Warehouses	37	36	36	40	39	41	25	28	27	28
3. Construction	264	281	242	271	230	288	197	238	265	203
Total Factories Act (Lines 1-3)	669	668	610	655	627	701	564	625	649	556
4. Mines and Quarries	284	288	295	244	256	191	181'	158	126	124
5. Agriculture (a)	80	71	65	64	49	73	58	63	70	41
6. Offices, Shops and Railway Premises (h)	28	28	28	28	34	29	16	39	20	32
7. Railways	167	118	116	96	103	72	78	62	69	68
8. Road Transport	57	55	65	70	86	78	82	90	81	80
9. Civil Aviation (c)	24	17	12	12	13	27	19	8	3	13
10. Seamen (d)	154	131	70	90	91	118	94	98	52	71
TOTAL (Lines 1-10)	1,463	1,376	1,261	1,259	1,259	1,289	1,092	1,143	1,070	985

Footnotes:

(a) Employees only, i.e. accidents to farmers, their families and children are not included.

(b) Actual figures for the years 1961-1964 are not available. Estimates for these years have been included to allow completion of totals.

(c) Accidents in Great Britain and overseas to the crews of aircraft on the British Register.

(d) Merchant seamen and fishermen.

General Notes:

- The table does not provide a complete picture of all work fatalities. It is estimated that some 5-6 million workpeople (approximately 20% of the workforce) do not fall within scope of any occupational safety and health legislation. Fatal accidents to them, unless occurring whilst temporarily employed on premises covered by legislation, would not be legally notifiable to the safety and health inspectorates, although in some cases, e.g. road transport (see line 8) information is collected by other agencies.
- The figures do not include deaths from prescribed diseases under the National Insurance (Industrial Injuries) Act 1965 except for line 5 (fatalities in Agricultural employment). Department of Health and Social Security statistics of awards of benefit for death from prescribed diseases under the Industrial Injuries Scheme and the Pneumoconiosis, Byssinosis and Miscellaneous Diseases Scheme are as follows:

1961-1153	1966-799
1962-1060	1967-749
1963-1142	1968-819
1964—991	1969-885
1965—992	1970-788 (provisional figure)

It should be noted that death benefit under the National Insurance (Industrial Injuries) Act is payable only if the deceased person leaves a dependent who qualifies for an award. For this reason these figures will to some extent understate the actual number of deaths.

Sources

Lines 1-4, 7 and 10

Central Statistical Office, Annual Abstract of Statistics 1971, Table 65.

Line 5

Figures supplied by Ministry of Agriculture, Fisheries and Food and Department of Agriculture and Fisheries for Scotland.

Line 6

Annual Reports on the operation of the Offices, Shops and Railway Premises Act 1963.

Line 8

Department of Health and Social Security statistics of industrial death benefit awards under the National Insurance (Industrial Injuries) Act in respect of employees in the road transport industries.

Line 9

Figures supplied by the Department of Trade and Industry (Civil Aviation Department).

TABLE 2

ALL ACCIDENTS AT WORK IN GREAT BRITAIN 1961-1970
(Fatal and non-fatal accidents to employees as reported to various agencies)

	1961	1962	1963	1964	1965	1966	1967	1968	1969	1970
1. Factories	161,655	157,600	168,106	217,950	239,158	241,051	247,058	254,454	266,857	255,967
2. Docks and Warehouses	7,506	7,220	7,815	10,207	10,178	9,952	10,483	11,407	10,963	8,865
3. Construction	23,356	25,338	28,348	40,491	44,381	45,607	46,475	46,569	44,570	30,823
Total Factories Act (Lines 1-3)	192,517	190,158	204,269	268,648	293,717	296,610	304,016	312,430	322,390	304,595
4. Mines and Quarries(a)	191,208	201,389	206,234	201,364	209,935	188,909	169,763	144,046	121,402	03,903
5. Agriculture(b)	12,846	13,553	14,548	13,276	11,839	10,680	10,069	8,722	8,783	7,366
6. Offices, Shops and Railway Premises	18,000(c)	18,000(c)	18,000(c)	18,000(c)	17,225	18,533	19,903	19,075	19,018	16,871
7. Railways	14,233	12,139	11,846	11,064	9,838	8,236	8,003	6,912	7,335	7,635
8. Road Transport	16,200	16,400(c)	16,600	18,700	22,700	22,900	25,300	26,700	26,300	33,860
9. Civil Aviation(d)	30	27	25	17	22	35	28	14	6	15
10. Seamen(e)	8,817(c)	8,783(c)	8,805(c)	9,090	8,672	8,769	8,361	8,177	8,421	8,491
TOTAL (Lines 1-10)	453,851	460,449	480,327	540,159	573,948	554,672	545,443	526,076	513,655	472,746

Footnotes:

- (a) Excluding coal mines not operated by the National Coal Board. (The National Coal Board employs about 99% of the total labour force engaged in coal mines.)
 (b) Employees only, i.e. accidents to farmers, their families and children are not included.
 (c) Actual figures for these years are not available. Estimates have been included to allow completion of totals.
 (d) Accidents in Great Britain and overseas to crews of aircraft on the British Register.
 (e) Merchant seamen and fishermen (see notes on sources).

General Notes:

1. In general, the table relates to accidents causing absence from work for more than three days. It does not provide a complete picture of all such accidents. Variable proportions of reportable accidents are not reported, and in addition some five-se million workpeople (approximately 20% of the workforce) do not fall within scope of any occupational safety and health legislation. Accidents to them, unless occurring whilst temporarily employed on premises covered by legislation, would not be legally notifiable to the main safety and health inspectorates, although in some cases information is collected by other agencies.
2. The figures do not include cases of prescribed diseases under the National Insurance (Industrial Injuries) Act 1965; Department of Health and Social Security statistics of new spells of certified incapacity due to prescribed diseases are as follows:-
- | | |
|-------------|-------------|
| 1961-27,934 | 1966-23,695 |
| 1962-26,076 | 1967-22,980 |
| 1963-23,185 | 1968-22,841 |
| 1964-24,221 | 1969-23,655 |
| 1965-25,235 | 1970-22,420 |

Sources:

Lines 1, 2 & 3

Annual Reports of HM Chief Inspector of Factories, 1961-1970 (tables showing reported accidents analysed by process).

Line 4

Annual Reports of HM Chief Inspector of Mines and Quarries, 1961-1970.

Line 5

Figures supplied by Ministry of Agriculture, Fisheries and Food and Department of Agriculture and Fisheries for Scotland.

Line 6

Annual Reports on the operation of the Offices, Shops and Railway Premises Act 1963.

Line 7

Annual Reports to the Secretary of State for the Environment (formerly to the Minister of Transport) on accidents which occurred on the railways of Great Britain, 1961-1968. Figures for 1969 and 1970 were supplied by the Department of the Environment.

Line 8

Department of Health and Social Security statistics of awards (other than on renewal claims) under the National Insurance (Industrial Injuries) Act 1965 in respect of employees in the road transport industries. The figures include deaths in the calendar year, and non-fatal injuries in the 12 months ending in June of the year shown.

Line 9

Figures supplied by the Department of Trade and Industry (Civil Aviation Department).

Line 10

Figures obtained as follows:-

- (i) Fatal accidents in the merchant and fishing fleets, from the Central Statistical Office Annual Abstract of Statistics 1971.
 (ii) Non-fatal accidents in the merchant fleet, from the British Shipping Federation.
 WO Non-fatal accidents in the deep-sea fishing fleet 1961-1967, from the Final Report of the Committee of Inquiry into Rank Safety, Cmnd 4114; for the years 1968-1969 from 'Deep Sea Trawlers', published in 1970 by the Board of Trade (now Dept. ment of Trade and Industry); and for 1970 from the Registrar General of Shipping and Seamen.
 (iv) Accidents in inshore fishing, from the Department of Trade and Industry.

TABLE 3

NUMBER OF WORKING DAYS LOST THROUGH ABSENCES
ARISING FROM INDUSTRIAL ACCIDENTS AND PRESCRIBED DISEASES
IN GREAT BRITAIN 1961-1970

<i>Year</i>	<i>Days Lost (Millions)</i>
1960/61	19.40
1961/62	20.13
1962/63	19.84
1963/64	21.78
1964/65	23.29
1965/66	24.25
1966/67	22.95
1967/68	23.48
1968/69	23.19
1969/70	22.81

Note. Figures obtained from annual reports of the Department of Health and Social Security. For national insurance purposes a working week is reckoned as 6 days. Days of incapacity following termination of injury benefit are not included.

TABLE 4
(see paragraph 12)

FATAL INDUSTRIAL ACCIDENTS
COMPARISON OF SOME INTERNATIONAL INCIDENCE RATES

Great Britain (1969)	0.04 ¹
Austria (1968)	0.33 ¹
Canada (1968)	0.12 ¹
Czechoslovakia (1969)	0.09 ²
France (1964)	0.10 ¹
Federal Republic of Germany (1968)	0.16 ³
Italy (1967)	0.10 ³
Switzerland (1968)	0.18 ³

Notes:

¹Annual rate of reported fatal industrial accidents per 1,000 employed.

=Annual rate of reported fatal industrial accidents per 1,000 wage earners.

²Rate of compensated fatal industrial accidents per 1,000 man-years of 300 days each.

The above incidence rates of fatal accidents in manufacturing industries have been obtained from the Year Book of Labour Statistics, 1970 (International Labour Office, Geneva, 30th Issue). International statistics of industrial accidents are not strictly comparable because of differences in methods of collation and presentation, as well as because of differences in industrial structures.

TABLE 5
(see paragraph 259)

PROSECUTIONS IN 1970

	ACT	Number of infringements prosecuted
1.	Agriculture (Poisonous Substances) Act 1952	234
	Agriculture (Safety, Health and Welfare Provisions) Act 1956}	
2.	Alkali etc. Works Regulation Act 1906	6
3.	Explosives Acts 1875 and 1923	30(a)
4.	Factories Act 1961	2,940
5.	Mines and Quarries Act 1954	16(b)
6.	Nuclear Installations Act 1965	—
7.	Offices, Shops and Railway Premises Act 1963	432
8.	Petroleum (Consolidation) Act 1928	25(a)
9.	Radioactive Substances Act 1960	16

(a) Normally prosecutions are taken by the police or local authorities. The figure shown is the number of convictions notified to the Home Office.

(b) The Mines and Quarries Inspectorate did not institute any proceedings. Five prosecutions were initiated by the National Coal Board and eleven by the Procurator Fiscal in Scotland.

Sources:

Line 1. Information provided by the Agriculture Departments.

Line 2. Information provided by the Department of the Environment.

Line 3. 1970 Annual Report of HM Inspectors of Explosives.

Line 4. 1970 Annual Report of HM Chief Inspector of Factories.

Line 5. Information provided by the Department of Trade and Industry.

Line 6. Information provided by the Nuclear Installations Inspectorate.

Line 7. 1970 Annual Report on the operation of the Offices, Shops and Railway Premises Act 1963.

Line 8. 1970 Annual Report of NM Inspectors of Explosives.

Line 9. Information provided by the Department of the Environment.

APPENDICES

APPENDIX 1**THE COMMITTEE'S PROCEDURE**

1. We were appointed on 29th May, 1970. Apart from time spent on visits we held formal meetings on a total of 48 days.

2. Shortly after our appointment we published a memorandum reviewing the field of the Inquiry and posing a number of questions. The memorandum (reproduced at Appendix 13) was sent to the CBI, TUC, government departments and a wide range of other organisations with a formal invitation to submit evidence. A general invitation was also issued through the press. In the event, written submissions were received from 1-83 organisations and individuals, and 38 also gave oral evidence. A list of those submitting evidence is given at Appendix 2. Some of the written evidence is being published as volume 2 of this report.

3. Whilst awaiting formal written submissions we held a series of informal exploratory discussions with officials of the main government departments and inspectorates concerned with safety and health at work, as well as with people from other organisations. We found these informal discussions extremely valuable, and we wish to place on record our deep appreciation of the helpful co-operation we received from all those who took part. During these initial stages, each of us individually accompanied inspectors on 'working visits' to factories, mines and farms throughout the country. Again, we record our gratitude to all those concerned.

4. We also made a number of group visits in this country and overseas. These are described in Appendix 3.

5. To supplement the written and oral evidence and the fact-finding visits, we commissioned a number of background papers to enable us to form some view of research approaches to the subject of safety and health at work. These papers are listed at Appendix 4.

APPENDIX 2

LIST OF THOSE WHO SUBMITTED EVIDENCE

Written submissions were made by the following (an asterisk denotes that oral evidence was also given):—

A: Government departments and similar bodies

Agricultural Research Council
Building Research Station
Council of Industrial Design (now the Design Council)
* Department of Agriculture and Fisheries for Scotland
Department of Education and Science
* Department of Employment
* Department of the Environment
* Department of Health and Social Security
* Department of Trade and Industry
Forestry Commission
* Home Office
^{1st} Law Commission
* Medical Research Council
* Ministry of Agriculture, Fisheries and Food
Ministry of Defence
National Radiological Protection Board
Safety in Mines Research Establishment
Science Research Council
Scottish Development Department
Scottish Education Department
Scottish Home and Health Department
Scottish Office
Social Science Research Council

B: Other organisations

Amalgamated Union of Engineering Workers
Aquamarine International (Fisheries and Ocean Development) Limited
Associated Offices Technical Committee
Association of County Councils in Scotland
Association of Independent Cinemas
* Association of Municipal Corporations
Association of Officers of the Ministry of Labour
* Association of Public Health Inspectors
Association of Scientific, Technical and Managerial Staffs
Association of Teachers in Technical Institutions
Bristol Accident Prevention Group
British Chemical Industry Safety Council of the Chemical Industries Association
British Institute of Management
* British Insurance Association
* British Medical Association
British Non-Ferrous Metals Federation
* British Occupational Hygiene Society
* British Safety Council
British Standards Institution

Business Equipment Trade Association
 Buxton Civic Association
 Central Electricity Generating Board
 Central Training Council
 * Chemical and Allied Products Industry Training Board
 Chief Fire Officers' Association
 Chief Medical Officers Group
 Cinematograph Exhibitors' Association of Great Britain and Ireland
 Civil Service National Whitley Council Staff Side
 Clayton Environment Control Specialists Limited
 * Committee of Vice-Chancellors and Principals of the Universities of the United Kingdom
 Concrete Society
 * Confederation of British Industry
 Contract Cleaning and Maintenance Association
 Council of Engineering Institutions
 Council of Ironfoundry Associations
 Counties of Cities Association
 * County Councils Association
 Dock and Harbour Authorities' Association
 Electrical Contractors Association
 Electricity Council and Area Boards in England and Wales
 * Engineer Surveyors' Association
 Engineering Employers' Federation
 * Engineering Industry Training Board
 Ergonomics Research Society
 Federation of Civil Engineering Contractors
 Federation of Film Unions
 Federation of Wholesale and Multiple Bakers
 Fire Brigades Union
 Food Machinery Association (now part of the Process Plant Association)
 Food Manufacturers' Federation
 Fowler Davies & Co
 Greater London Council
 Heating and Ventilating Contractors' Association
 Heating and Ventilating Research Association
 Horserace Betting Levy Board
 Hull and District Industrial Safety Council
 Hull Joint Port-Working Accident Prevention Committee (Trade Union side)
 * Industrial Law Society
 Industrial Society
 Inner London Education Authority
 Institute of Personnel Management
 Institute of Petroleum
 Institute of Shops Act Administration
 * Institution of Industrial Safety Officers
 * Institution of Professional Civil Servants
 Institution of Structural Engineers
 Joint Committee on Building Legislation
 * Law Society
 Lecturers in charge of university-affiliated occupational hygiene laboratories
 Lightguards Limited
 Lloyd's
 London Transport
 Mastic Asphalt Council and Employers Federation
 Medical Commission on Accident Prevention

Appendix 2

Medical Directors of the Industrial Group Health Services
National Association for Mental Health
National Coal Board
National Farmers' Union
National Federation of Building Trades Employers
National Federation of Demolition Contractors
National Federation of Meat Traders' Associations
National Federation of Professional Workers
National and Local Government Officers Association
National Union of Agricultural and Allied Workers
National Union of Funeral Service Operatives
National Union of Hosiery and Knitwear Workers
National Union of Mineworkers
National Union of Students
National Union of Tailors and Garment Workers
National Union of Teachers
Oil and Chemical Plant Constructors Association
Petroleum Industry Training Board
Post Office
Process Plant Association
Protective Footwear Service Limited ('Safety in the Seventies' competition)
Procter & Gamble Limited
Royal College of Nursing and National Council of Nurses of the United Kingdom
Royal College of Nursing, Occupational Health Section, Southampton and Wessex Regions
Royal Institute of British Architects
Royal Institute of Chemistry
* Royal Society for the Prevention of Accidents
St. John Ambulance Association and Brigade
Sanitary Inspectors' Association of Scotland
Scottish Trades Union Congress
Shipbuilding Industry Training Board
Soap, Candle and Edible Fat Trades Employers' Federation
* Society of Labour Lawyers
* Society of Occupational Medicine
Society for Radiological Protection
W. H. Thompson, Solicitor
* Trades Union Congress
Trade Union Delegates of the Joint Safety Advisory Committee, Port Talbot Works of the British Steel Corporation
Transport and General Workers Union
Union of Shop, Distributive and Allied Workers
* United Kingdom Atomic Energy Authority
University of Manchester Institute of Science and Technology
* Urban District Councils Association
Wolf Electric Tools Limited

C: Individuals

Mr. P. Arklow
Mr. S. M. Barnes
Mrs. B. N. Barrett (jointly with Dr. R. W. L. Howells)
* Mr. R. P. Barry (oral evidence only)
Mr. V. E. Boxall
Professor R. C. Browne

- * Dr. J. H. Burgoyne
- Dr. L. J. Burrage, OBE
- * Mr. D. J. Burrows
- Mr. R. Calder
- Mr. W. G. Carson
- Mr. B. J. Clayman
- Mr. A. Cook
- Sister D. M. Cracknell
- Mr. C. Curson
- Dr. C. K. Elliott
- Mr. E. Epworth
- Dr. L. Greenberg (Israel Institute of Technology, Haifa)
- Dr. T. B. Hadden
- Mr. F. W. Hart
- Mr. K. W. Hawley
- Mr. J. C. Henry
- Mr. J. A. Hill
- Mr. D. Holister
- Dr. R. W. L. Howells (jointly with Mrs. B. N. Barrett)
- Mr. A. J. Kean
- Mr. E. King
- Mr. W. Kuy
- Dr. D. McColl
- Mr. C. S. Nicholson
- Mr. J. Norbury
- Mr. P. O'Gorman
- Mr. M. O'Neill
- Mr. O. H. Parsons, Solicitor
- * Dr. E. E. Pochin, CBE
- Mr. G. M. Rose
- * Sir Owen Saunders (oral evidence only)
- Dr. W. J. Scott
- Mr. C. R. Shortt
- Mr. J. A. Stephenson
- Mr. B. R. Toomey
- Dr. P. J. C. Walker
- * Mr. S. L. Williams, Solicitor
- Mr. B. M. Wreford

APPENDIX 3

(see paragraph 6)

VISITS MADE BY THE COMMITTEE

1. We made a number of visits in this country and overseas to study various aspects of safety and health problems at first hand and to hold discussions on the spot with officials, managements and workpeople. For the co-operation, kindness and hospitality we received both here and abroad we are deeply indebted to the government departments, local authorities, employers, trade unions and individuals too numerous to mention who helped provide facilities for our visits and who gave freely of their time to take part in discussions with us.

2. Each member of the Committee individually accompanied field personnel of the Factory Inspectorate, the Mines and Quarries Inspectorate and of the Agriculture Departments on working visits to a wide range of factories, coalmines and farms throughout the country. In addition, Committee visits were made (by individuals or groups) to the following establishments :—

British Oxygen Company Limited (Gases Division), Brentford
British Steel Corporation (Strip Mills Division), Port Talbot
Chrysler (UK) Limited (Ryton Plant), Coventry
E.M.I. Electronics Limited (Ergonomics Laboratory), Feltham
I.C.I. Limited (Heavy Organic Chemicals Division), Wilton, Teesside
Industrial Hygiene Unit, Department of Employment
Medical Services Laboratories, Department of Employment
Procter & Gamble Limited, Trafford Park, Manchester
Shell UK Limited, Shell Haven Refinery, Stanford-le-Hope
Safety in Mines Research Establishment, Sheffield
TUC Centenary Institute of Occupational Health, London School of Hygiene and Tropical Medicine
Thurrock Urban District Council, Grays
Turner Brothers Asbestos Company Limited, Rochdale

CANADA

3. We visited Canada from 12th to 18th May 1971. Discussions were held in Ottawa with representatives of Federal Government Departments, the Canadian Labour Congress, the Canadian Manufacturers' Association, the Canadian Construction Association, the Railway Association of Canada, the Canadian Safety Council and the Canadian Standards Association. In Toronto we had talks with representatives of the Ontario Department of Labour, the Ontario Workmen's Compensation Board, the Industrial Accident Prevention Association and the Ontario Labour Safety Council. We also visited the Toronto factory of Kodak (Canada) Limited. One of our members had talks with officials of the British Columbia Workmen's Compensation Board during a private visit to Vancouver.

4. Legal standards designed to ensure the safety and health of persons employed in industrial and commercial establishments, mines and quarries and other workplaces are in force in all the provinces in Canada. The Federal Government has some legislative and enforcement responsibilities in this field, but occupational safety and health is mainly a matter for the various provincial administrations. The provincial Workmen's Compensation Boards play a major role. Boards have three members, one of whom is normally drawn from management and one from organised labour, although they are not appointed in a representative capacity.

5. Federal arrangements. The Canada Labour (Safety) Code 1966 is the principal federal legislation. It is a short enabling Act imposing general obligations on employers and employees, and containing provisions for making regulations and for enforcement, penalties and safety services. The scope of the Act is restricted to industries falling within the Federal jurisdiction including inter-provincial railways, road transport, pipelines, tunnels and bridges, banks, grain and flour mills, and certain Crown corporations and employees. The Code covers some 10%-15% of the Canadian working population. It came into effect in January 1968, and at the time of our visit a small number of regulations had been made. Extensive use is being made of 'consensus' standards such as those published by the Canadian Standards Association and the American National Standards Institution. Particular standards may be referred to in regulations as acceptable means of satisfying statutory requirements. It is the intention to review each regulation annually.

6. There is a small corps of federal safety inspectors (known as 'safety officers'), but most day-to-day enforcement is undertaken by safety officials of the provincial administrations acting as agents of the Federal Government. Although the safety officers have extensive powers, including powers to stop dangerous processes, the Federal Department of Labour is endeavouring to emphasise and develop the advisory side of its work, and to avoid routine patterns and methods of inspection. The federal safety officers are concentrating upon an experimental system of in-depth safety surveys and safety audits in which small teams concentrate on particular industries, companies or factories. The aim is to establish the underlying causes of accidents and to devise comprehensive remedial programmes. Some 500 surveys and 24 audits had been made in the 12 months preceding our visit.

7. Provincial arrangements. There are important differences between the occupational safety and health arrangements made by the various provinces. Each province has its own safety and health legislation. Enforcement responsibilities are divided in various ways between provincial departments of labour, health and mines, and the Workmen's Compensation Boards. The latter, set up under provincial Workmen's Compensation Acts, make provision for industrial injuries schemes. They are in some ways similar to the German Berufsgenossenschaften (see paragraph 15) except that they are organised on a geographical rather than on an industrial basis. The responsibilities and activities of the Boards vary from province to province. In some cases they make and enforce accident prevention regulations.

8. Ontario. Safety and health legislation in Ontario covers about 90% of the workforce. Officials of the Ontario Department of Labour make about 60,000 inspections annually. The annual number of prosecutions averages about 60. The Ontario Workmen's Compensation Board administers the compensation arrangements and supports safety prevention activities and rehabilitation programmes. In contrast to the position in some of the other provinces, the Ontario Board has no direct legislative responsibility for accident prevention and indeed regards enforcement as incompatible with advisory and educational work. It supports the latter by supplying funds to the Industrial Accident Prevention Associations, which are employer groups providing technical advisory services to individual firms. The compensation scheme itself is similar to those in other provinces in that contributions from each employer are assessed according to the claims record of the particular industry group. An industry group can also opt to have individual merit-rating within the group, and two groups have done this. A feature of the Ontario scheme is the provision for 'penalty assessment', whereby the Board can impose special levies on firms with very poor safety records (if the firm agrees to remedial action as directed by the Board, the penalty is not collected). Promotional work is also undertaken by the Ontario Labour Safety Council, which has been operating since 1962 as an advisory body to enquire into and advise the Provincial Government on matters affecting safety. The Council includes representatives of employers' associations and trade unions.

Appendix 3

9. The British Columbia Workmen's Compensation Board. In British Columbia, as in Alberta, Saskatchewan, Manitoba, Prince Edward Island and Newfoundland, the Workmen's Compensation Board is the enforcement authority for occupational safety legislation. Except in Manitoba, these Boards have statutory powers to make regulations which apply to virtually all places of employment. The British Columbia Workmen's Compensation Board has three divisions dealing respectively with administration of claims, with rehabilitation, and with accident prevention. The accident prevention division has three branches: the Accident Prevention Inspectorate (36 inspectors); the Safety Research and Education Branch; and the Industrial Hygiene Branch. Computer programmes are being introduced to draw up hazard ratings for each workplace based on data of previous lost-time and non-lost-time accidents, and inspection will be programmed on this basis. The Accident Prevention Branch is at present framing new accident prevention regulations which, after consultation with both sides of industry, will become mandatory without reference to the legislature.

10.. The Workmen's Compensation Act of British Columbia provides compensation for workmen injured or disabled in the course of employment. Compensation payable under the Act is in lieu of any right of action which may have existed at common law. Injury compensation is paid at 75% of average earnings, and there are residual disability and widows' pensions. Pensions are adjusted automatically with movements in the retail price index. The fund is financed by contributions from employers, the rates being determined by reference to the claims-cost experience of the industrial classification in which the employer is assessed. In the construction industry, each firm's premium is assessed individually by reference to the number of days for which the firm's,- employees have received compensation, with additions made for fatal accidents and permanent disability.

FEDERAL REPUBLIC OF GERMANY

11. We visited West Germany from 16th to 19th March 1971. We had talks in Bonn with officials of the Federal Ministry of Labour and Social Security, and of the Hauptverband der Berufsgenossenschaften; in Cologne with the German Employers' Confederation; and in Dusseldorf with the German Trade Union Federation and the Ministry of Labour, Health and Social Security for the Land of North Rhine Westphalia. We also visited the chemical works of Farbenfabriken Bayer at Leverkusen, where we met representatives of the management and the works council.

12. Administrative responsibilities for occupational safety and health in West Germany are shared by the Federal Government, the 11 Land Governments and the 36 industrial Berufsgenossenschaften.

13. Arrangements at Federal level. The Federal Ministry of Labour and Social Security at Bonn has an occupational safety and health division which maintains general oversight of safety and health at work in the Federal Republic. The Ministry controls the Federal Institute for Safety at Work at Koblenz, a centre concerned primarily with research, information and training. The Ministry publishes a monthly journal 'Arbeitsschutz' which contains the texts of safety regulations and instructions, as well as articles and reviews on topical subjects.

14. Arrangements at Land level. Most federal safety provisions are enforced by the Land Governments. In the 11 Lander there are 77 district offices for occupational safety and health. We visited the safety and health division of the Ministry of Labour, Health and Social Security for the Land of North Rhine Westphalia. This has a small headquarters staff, 6 regional offices and 23 district offices. The latter are responsible for the inspection of some 400,000 establishments with a combined workforce of over 5 million. At the time of our visit there were 710 inspectors in post at the 23 district offices in North Rhine Westphalia. There are three distinct grades of inspector—higher, intermediate and junior. The higher grade comprises inspectors with advanced qualifications; the inter-

mediate grade inspectors are mostly graduates of technical colleges; and the lower grade is recruited from technicians and junior management in industry.

15. The Berufsgenossenschaften. The Berufsgenossenschaften are industrial injuries insurance institutes (the first ones were founded by Bismarck in 1884). Thirty-six Berufsgenossenschaften are organised on an industry basis, and each is controlled by a joint committee consisting of equal number of employers' and employees' representatives. Although originally established as injury-compensation boards, the Berufsgenossenschaften now see their primary task as the prevention of accidents, with compensation and rehabilitation as secondary functions. They are financed by contributions levied on employers. No contributions are made by the employee or the state. An employer's contribution is fixed at a percentage of his payroll and the basic rates are reviewed every three years. The Berufsgenossenschaften aim to encourage individual employers to raise safety and health standards by varying the premium rates, granting rebates or imposing additional levies on individual employers with relatively very good or very bad records.

16. Each Berufsgenossenschaft has its own prevention services including inspection, research, and publication of advisory material. The 36 Berufsgenossenschaften employ a combined total of some 700 to 800 inspectors covering about 20 million workpeople in close on 1,600,000 establishments.

17. Legislation and enforcement. Relevant legislation is enacted by both Federal and Land Authorities, in addition to which each Berufsgenossenschaft makes rules and regulations which have the force of law. The Land inspectorates are responsible for enforcing regulations (mostly Federal) relating to general protection and hygiene and to certain hazardous activities. The Berufsgenossenschaft inspectorates enforce regulations (mostly their own) on more detailed matters such as machine guarding. All of the inspectorates pay regard to standards and guidelines laid down by such organisations as the German Standards Association and the Verein Deutscher Ingenieure.

18. A number of Land and Berufsgenossenschaft inspectorates store information about undertakings, processes and hazards on computers to assist in planning their activities. Inspections may be unannounced or by appointment. On the inspector's arrival at a factory, both the employer and the works council (if there is one) must be informed of the impending inspection, and the inspector must be accompanied on the premises by a member of the works council. Quite frequently the Land and the Berufsgenossenschaft inspectors visit workplaces together. The main aim is to provide advice, but improvement orders can be made and penalties can be imposed without recourse to prosecution proceedings in the courts. There is an appeals procedure.

19. Design and manufacture of machinery. Under the Equipment Safety Law enacted in December 1968, all manufacturers and importers of machinery, tools, etc., are required to ensure before display for sale or before delivery to customers that the equipment, when properly used, is safe from hazards to life and health. Regulations for the full implementation of the law are, we understand, still under discussion. The Berufsgenossenschaften have set up special expert committees and any manufacturer or importer of equipment may apply to have equipment examined, for the issue of a safety certificate. Testing of new equipment is also done by a number of non-statutory organisations, some of whom issue certificates.

20. Occupational health. There are some 70 full-time medical inspectors in the II Under inspectorates. At each of the two occupational health centres in North Rhine Westphalia there are nine doctors, one chemist and twenty technically qualified assistants who undertake a wide range of investigations and assist in the training of works medical officers and of part-time state medical officers (similar to Appointed Factory Doctors in Britain).

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21. Research. Occupational safety and health research is undertaken at the Federal Institute for Safety at Work at Koblenz, at research institutes set up by some of the Berufsgenossenschaften, as well as by universities, industrial organisations and some of the larger companies. Approval was given in 1971 for the provision of a new and larger federal research and information institute at Dortmund to replace the institute at Koblenz. It is hoped that the new institute will exercise a co-ordinating influence over the whole field of occupational safety and health research and training.

SWEDEN

22. Members of the Committee visited Sweden during the period 26th to 29th September 1971. We had talks with the Ministry of Social Affairs, the Workers' Protection Board, the National Institute of Occupational Health, the Joint Industrial Safety Council, Bygghdlsan (the Foundation for Industrial Safety and Health in the Construction Industry) and with management and employees of the Aga Engineering Company at Lidingo. Occupational safety and health arrangements in Sweden are currently under review by a government-appointed Committee of Inquiry.

23. The Swedish Ministry of Social Affairs is, by British standards, quite small, and consists mostly of financial and legal experts. Executive functions are hived-off to Boards which are largely autonomous but are dependent on the Ministry for their financial resources and are ultimately responsible to the Minister. The Workers' Protection Board is the main regulatory agency for safety at work. The Board has two committees of management. One, consisting of the Director-General and departmental heads, controls the Board's main operations. The other consists of the Director-General, two heads of departments and three representatives from the SAF (the employers' confederation) and the LO (the trades union confederation); it is concerned mainly with hours of work questions. In addition to specialists the Board employs some 200 general inspectors. Local authority inspectors visit workplaces where there is no machinery and where less than 11 people are employed.

24. Legislation and enforcement. The Workers' Protection Act 1949 and the Workers' Protection Regulations 1949 apply to every activity, industrial or otherwise, in which persons are employed, and also to work undertaken jointly by tv.,) or more self-employed persons or partners. There is a general duty on every employer to take all steps that can reasonably be required of him to prevent his employees suffering from injury to health or from meeting with accidents. There is a general duty on the employee to use the safety equipment provided, to observe statutory requirements and to exercise due care and co-operation in preventing accidents and injury to health. The legislation is supplemented by directions published by the Workers' Protection Board. These do not have legal force in themselves but they can be given legal effect in individual cases through orders made by the inspectorate. The inspectorate is principally an advisory body, but inspectors can issue written instructions that are mandatory. This provision is, however, used very sparingly: 17 such orders were issued in 1969. If a binding order is not complied with, the papers are handed over to the police for prosecution.

25. Research and information. The National Institute of Occupational Health was set up in 1966. Its four principal functions are: research (60% of its activities), practical studies and investigations (5%), publicity (5%) and teaching (30%). The Institute's interests are not confined to occupational medicine. There are six departments—Administration, Chemistry, Industrial Hygiene Engineering, Medicine, Physiology, and Psychology/Sociology. Care has been taken to ensure that the departments do not work in isolation; inter-disciplinary projects are a feature of the work. The Institute is controlled by an executive board consisting of a Director and representatives of the Workers' Protection Board, the National Board of Health and Welfare, SAF and LO.

26. It was pointed out to us that it is relatively easy to organise an institute where each department is carrying out its own research independently. It is more important but more difficult to organise inter-disciplinary research covering the activities of two or more departments. The Institute has divided the research programmes into four major groups :—

- (a) Occupational hazards—medical epidemiological studies are combined with industrial hygiene engineering surveys (e.g. on silicosis, asbestosis, noise and vibration), with the aim of developing preventive medical and technical measures.
- (b) Studies of production processes and methods such as welding, painting, shift-work etc., in which the medical, physiological, psychological, chemical and engineering aspects are examined concurrently.
- (c) Large groups of the working population may have common problems, and broad studies are organised on such projects as the ageing worker and the rehabilitation of the unemployed worker.
- (d) Occupational groups—broad studies of the health problems of a whole profession or occupation.

27. The National Institute for Occupational Health emphasised to us the importance they attach to effective lines of communication by means of publicity. A news bulletin, *AI—Aktuellt*, is published every two months, giving brief reports of the work being carried out in the Institute and information about courses and publications. There is a series of reports, *AI—Rapport*, containing reports from applied research or practical field investigations. The Institute has its own scientific journal *Studia Laboris et Salads*, for scientific reports. There are numerous other publications and there is also a special documentation and bibliographical service.

28. **Joint consultation.** The Swedish tradition of joint consultation in industrial relations is fully reflected in the field of safety and health. An agreement was made between SAF and LO in 1942 providing for the appointment at workplaces of workers' safety representatives and joint safety committees. When new safety and health legislation was made in 1949 it was decided that it should include provisions for appointing safety representatives (where 5 or more persons are employed) and safety committees (where 50 or more persons are employed). Although these requirements are written into the legislation, no penalty is prescribed for failure to comply. It was said that the existence of the legal provisions acts as a spur and also is of help to inspectors in pointing out to employers the sort of organisation they ought to have.

29. **Joint Industrial Safety Council.** SAF and LO set up the Joint Industrial Safety Council in 1942. The Council consists of three members appointed by SAF and three appointed by LO, and it is staffed by a small secretariat. The Council has an annual budget of one million crowns (about £80,000), contributed in equal shares by SAF and LO. The main emphasis of the Council's work is on education and training, particularly of management and of workers' safety representatives. It produces advisory literature and propaganda material, arranges conferences and provides an information service. The tendency is to make provision for the general aspects of accident prevention rather than to produce specialised material relevant to particular industries. None of the training or publicity material is free, but charges are kept low. The Council has recognised the reluctance of people to study books in the television age and has concentrated on producing material which makes full use of visual aids and modern techniques. Emphasis is given to the education of teachers and trainers. A large number of safety trainers have taken the training course (one week) organised by the Council, usually at industry or factory level. A number of employers' associations and trade unions are independently active in this area. For example the Metal Workers' Union budgets for the expenditure of one million crowns annually on the training of safety representatives.

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30. Bygghilsan—the Foundation for Occupational Safety and Health in the Construction Industry. Bygghalsan was formed in 1967 to co-ordinate safety and health activities in the construction industry. It has two principal aims. First, to promote safety and health in relation to machinery, equipment, working practices and the general working environment. Secondly, to provide preventive health care, medical treatment and rehabilitation. Bygghalsan has a board of directors, a central office in Stockholm and 17 regional offices covering rather more than 200,000 employees. It is financed by means of a levy on employers collected through the holidays-with-pay scheme.

31. Each of the regional offices has a medical and a technical section. Advice and assistance is given on medical, industrial hygiene and ergonomic problems, and sites are visited regularly by mobile health units and by safety engineers.

UNITED STATES OF AMERICA

32. Members of the Committee visited the United States of America from 18th to 26th May 1971. In Washington we had talks with officials of the Occupational Safety and Health Division of the Department of Labor, the Bureau of Occupational Safety and Health (Department of Health, Education and Welfare), the AFL/CIO, and the United States Chamber of Commerce. We visited the headquarters of the U.S. Atomic Energy Commission in Bethesda, Maryland. In Chicago we met officials of the American Mutual Insurance Alliance, the National Safety Council (a voluntary organisation), Underwriters' Laboratories Inc. (a non-profit-making organisation which tests products for safety) and the American Medical Association. At Wilmington in Delaware we had discussions with personnel of E. I. Du Pont de Nemours Co. In New York we met officials of the New York State Department of Labor.

33. Hitherto, occupational safety and health in the U.S.A. has been largely a matter for the individual States, but the Occupational Safety and Health Act of 1970 extended Federal statutory coverage to some two-thirds of the total work force. The Act stemmed from public concern with the rising trend in industrial accidents recorded during the 1960s, coupled with doubts about the adequacy of existing standards in some of the States. The Act provides a spur to the States inasmuch as a State can retain jurisdiction if it can satisfy the Federal Labor Department that it has an adequate system of its own.

34. The Act imposes a general duty on the employer to provide a place of employment free from recognised hazards and to comply with the safety and health standards promulgated under the Act. The employee must comply with standards and rules applicable to his own action and conduct. One of the major effects of the Act is that a great many voluntary standards and codes will become legally mandatory upon promulgation by the Secretary of Labor. Two independent organisations are the major sources of 'consensus' standards—the American National Standards Institute and the National Fire Protection Association. The Act also establishes a procedure whereby the Secretary of Labor can appoint advisory committees to recommend revised or new standards. Any employer may apply for a variance from a standard, but he must be able to prove that he will maintain a place of employment that is as safe as if he complied with the standard.

35. The Act provides for enforcement through inspection. A representative of the employer and a representative authorised by his employees must be given an opportunity to accompany the inspector around the workplace for the purpose of aiding the inspection. Inspectors will be known as 'compliance officers'. The Act provides that when an inspector finds an infringement, he will issue a citation to the employer fixing a time for corrective action to be completed. Each citation is to be prominently posted at or near the location of the infringement. The inspectorate will decide whether the infringement warrants imposing a penalty and, if so, will notify the employer of the

proposed fine. If the employer does not contest the assessment within 15 days, it shall be deemed a final order and not subject to review. Where the assessment is contested, the matter will be referred to an independent 3-man Occupational Safety and Health Review Commission. Inspectors will also have powers to seek 'stop' injunctions from the courts, but it is not expected that this power will be used save in exceptional circumstances.

36. Occupational health. The Bureau of Occupational Safety and Health is under the Department of Health, Education and Welfare. At the time of our visit it was being expanded to form a National Institute for Occupational Safety and Health, as provided for in the new Act. The new Institute is concerned with long-term research and related activities, and works closely with the Department of Labor in standard-setting. It has produced the first of its annual lists of toxic substances, as required by the Act. This lists some eight thousand items with information about the chemical composition of the substances, the toxic effects for man and/or animal, and literature references. The Institute expects that a Toxic Substances Bill will be introduced to require the testing (by manufacturers) of all substances before being brought into commercial use.

37. Compensation. The Occupational Safety and Health Act of 1970 made provision for the setting up of a National Commission to make a comprehensive study and evaluation of State workmen's compensation laws. The Commission is required by the Act to report to the President and to Congress not later than 31st July 1972. All States have workmen's compensation legislation, with considerable variations as between States in the extent of coverage and the amount of compensation provided for. Ohio and Wisconsin have State compensation schemes which are administered entirely by the State without the participation of the insurance companies. Elsewhere, employers must insure for workmen's compensation through private insurance companies.

38. Insurance companies. We formed the impression that American insurance companies play a rather more active role in accident prevention activities than do insurance companies in Great Britain. In Chicago we were able to meet officials of the American Mutual Insurance Alliance. The Alliance is a trade association of insurance companies. It seeks to feed information to member companies and to co-ordinate their activities. There are other similar insurance alliances. As one of its main activities the Accident and Fire Prevention Department of the Alliance provides a safety advisory and information service. Through its member-companies it issues to policy-holders a great deal of literature on various aspects of occupational health and safety. Some of this is highly technical and is used by insurance inspectors and surveyors, as well as by the policy-holders. The Alliance has developed a 'Profit by Loss-Control' programme, specifically designed to assist small policy-holders to institute a loss-control system.

39. New York State. Occupational safety regulations in New York State are promulgated by a semi-autonomous Board of Standards and Appeals. The State Department of Labor has developed two distinct programmes of inspection, one concentrating on enforcement and one on advice and education. Approximately two-thirds of the inspectors (mainly the less qualified personnel) are engaged in routine visits, checking for compliance. It was said that approximately 100 prosecutions are undertaken each year. Inspectors are also able to 'tag' equipment as unsafe, but this procedure is used very infrequently. The second leg of the inspection programme is concerned with advice and education. Advisory 'programmes' are instituted and supervised for particular plants and industries, and there are also programmes aimed at encouraging trade union activity in the field of safety. Training courses and seminars are arranged for supervisors and shop stewards, mainly at industry level. The advisory inspectors are given special training at university-level institutions.

APPENDIX 4
(see paragraph 7)

RESEARCH REVIEWS

A number of reviews of research were commissioned to enable the Committee to form some view of research approaches to the subject of safety and health at work. The papers are listed below.

<i>Subject</i>	<i>Author</i>
1. A review of the industrial accident literature.	National Institute of Industrial Psychology
A study of the statistics relating to safety and health at work.	Institute for Operational Research
3. The use of time-series in the analysis of industrial accidents.	Professor W. Baldamus (University of Birmingham)
4. A cost-effectiveness approach to safety.	Mr. Craig Sinclair (University of Sussex)
5. The ergonomics of safety and design.	Professor W. T. Singleton (University of Aston)
6. Aspects of industrial safety law.	Dr. R. W. Rideout (University of London)
7. Mental health problems in industry.	Dr_ Andrew Treacher (University of Bristol)
8. The effects of environmental conditions in industry upon individual efficiency and susceptibility to accidents.	Dr. E. C. Poulton (M.R.C. Applied Psychology Unit, Cambridge)
9. Size of organisation and industrial accidents.	Dr_ G. K. Ingham (University of Cambridge)
10. Safety propaganda.	Mr. R. G. Sell
11. Wages and accidents.	Professor J. E. T. Eldridge (University of Bradford)

APPENDIX 5
(see paragraph 22)

A NOTE ON THE HISTORY OF OCCUPATIONAL SAFETY AND HEALTH
LEGISLATION IN BRITAIN

1. The history of occupational safety legislation in Britain is to a great extent, though not exclusively, the history of legislative control over manufacturing industry. The stimulus to the development of legislative control over working conditions in factories is well known. The Industrial Revolution, bringing with it the use of powered machinery and the great expansion (particularly, at the outset, in the textile industry) of factory employment, created working conditions of a type previously unknown. In the latter part of the eighteenth century the development of water-powered machinery led to the establishment of textile mills in country districts and to a significant demand for labour which was filled largely by the importation of pauper children from the south of England. It was the appalling conditions in which some of these children worked that led, in 1802, to the first factory Act. This set out to limit working hours of apprentices in cotton mills, to lay down very general standards of heating, lighting, ventilation, etc., and to provide for their education. The Act relied for enforcement on the appointment of visitors by local justices of the peace. It was largely ineffective. Its requirements were frequently misunderstood or ignored. Most magistrates lacked interest in factory problems, or were too closely allied with the mill owners, to encourage compliance with the law. However, the Act touched on most of the main themes—limitation of working hours, control of physical conditions, the principle of enforcement—which were to be developed in subsequent legislation.

2. Further statutes in 1819, 1825 and 1831 attempted to reinforce or extend the controls formulated in 1802. They were, however, ad hoc measures. There was no consistent attempt to regulate the conditions of employment. Meanwhile the context of the problem changed. As steam power supplanted water power, the textile industry moved away from the country districts and large factories were established in the rapidly-expanding towns. The age had arrived of the 'dark satanic mill' where both children and adults were often obliged to work excessively long hours in cramped and dirty surroundings.

3. In 1830 the Short Hours Movement began. This marked the beginning of a twenty-year campaign for statutory limitation of the working hours of women, young persons and children (and hence, by implication, of those of male operatives also) which dominated the early development of factory legislation. The 1831 Act brought in a twelve-hour day for young persons in cotton mills, but its lack of effect served only to intensify agitation in the manufacturing districts. In 1833 the Whig Government, in an attempt to counter a Ten-Hour Bill brought in by Lord Ashley, appointed a Royal Commission on the employment of child labour in factories. The result was the 1833 Act, which has been described as 'the turning-point in factory legislation'. The twelve-hour day for young persons was retained, and extended to cover those in woollen and linen as well as cotton mills, and provision was made for the education of child workers. But the most important feature was the introduction for the first time of an effective means of enforcement. Four inspectors were to be appointed by the central government. They had rights of entry into any factory or mill; could make such rules, regulations and orders as were necessary to implement the Act; and had powers similar to those of justices of the peace in enforcing it. Sub-inspectors could also be appointed. The Act made specific reference to the failure of the enforcement provisions of the 1802 Act as the justification for this administrative innovation.

Appendix 5

4. The middle years of the century saw the development of the role of the inspectorate, working at the outset with great tact and reticence in explaining the Act to mill owners, and later, as its many loopholes became obvious, with a more vigorous attitude towards enforcement. The initial problems of ensuring compliance were met by a series of seven Acts passed between 1844 and 1856 which imposed a variety of health and safety requirements for different types of mill, and varying limits on the hours of work of children according to age and size of establishment. The opportunities for evasion were many, and this period illustrates clearly the ad hoc nature of the political approach to factory legislation. Each Act was the consequence of some more or less transient propaganda campaign centred on a particular hazard or problem. For example, recognition of the risks of injury to women through the contact of their clothing with machinery led to the inclusion in the 1844 Act of the first provision for the fencing of machines. Or again, the inspectors, having noted the transfer of child labour from textile mills to other establishments which were not subject to factory law, campaigned for the extension of controls in a notable series of published annual reports.

5. It was not until 1864 that statutory protection was extended beyond the textile industries with an Act which dealt with six new trades, including pottery and match-making (the textile finishing trades had been covered in an Act of 1860). In 1867 some heavy industrial processes (foundries, blast furnaces, copper mills) were brought under the sanitary provisions of previous legislation, as were all manufacturing establishments employing fifty or more persons. The Workshop Regulation Act of 1867 instituted a more limited degree of protection for workers in smaller establishments. The obvious difficulties of administering overlapping and sometimes contradictory laws led eventually to the setting up of a Royal Commission in 1876, and to the consolidating Factory and Workshop Act of 1878. This ended the division between the two types of establishment and instituted instead a general definition of 'factory' premises which has been continued, with certain changes, into current legislation. Another important development was the Employers' Liability Act of 1880.

6. The subsequent history of factory legislation is largely one of proliferating detailed legislation, interrupted periodically by attempts at consolidation. From 1878 the Inspectorate (now led by a Chief Inspector, and with an effective district organisation and much greater numbers) turned its attention more towards the control of the physical environment of working people. The impracticability of using Acts of Parliament to lay down detailed controls over particular processes became clear, and statutes of 1891 and 1895 gave the Home Secretary powers to draw up special regulations for particular industrial activities and to limit or prohibit the employment of all or certain categories of worker in any process. The next consolidating Act, which came into force in 1901, drew together five other statutes passed since 1878, and was followed in its turn by a large number of detailed regulations, many of which are still in force. The subsequent Acts of 1937, 1948 and 1959 added some new provisions but produced no fundamental changes in the scope and pattern of the legislation; they were repealed and replaced by the Factories Act 1961, a consolidating measure.

7. Meanwhile, other sectors of employment had been made subject at different times to safety legislation. In 1842 a Royal Commission looked into the employment of children in mines. The result was an Act in the same year forbidding the employment of women and children underground. From these beginnings grew a corpus of mines and quarries legislation. The first inspector of mines was appointed in 1843, and HM Inspectorate of Mines and Quarries now administers the comprehensive safety provisions of the Mines and Quarries Act 1954. On the railways, legislation to prevent accidents to employees dates from 1900. Agricultural workers were, with small exceptions, without statutory protection prior to the Agriculture (Poisonous Substances) Act of 1952 and the Agriculture (Safety, Health and Welfare Provisions) Act 1956. The working hours of shop employees were first regulated in 1886, and from 1904 local authorities were empowered

to make orders limiting the opening hours of shops. Subsequent legislation affecting various types of shop was consolidated in 1950. However, the physical conditions of shop employment remained largely outside statutory control until the Offices, Shops and Railway Premises Act of 1963 extended to shopworkers standards of protection similar to those in factory legislation. The 1963 Act filled the largest remaining gap in employee safety legislation, but further legislation has been introduced to cover specialised groups of workers. For example, provision for the safety and health of workers on offshore installations was made in the Mineral Workings (Offshore Installations) Act 1971.

8. In addition to legislation of this type, separate and to some degree overlapping legislation has been introduced from time to time to deal with particular industrial hazards in the interests of safeguarding generally, rather than exclusively in the interests of employees. The first of these enactments was the Explosives Act of 1875, which led to the establishment of HM Inspectorate of Explosives. Others in this line were the Petroleum (Consolidation) Act 1928 and the Nuclear Installations Acts 1959, 1965, and 1969. In the result, it may fairly be said that the present pattern of safety legislation is comparable to the pattern which existed in the nineteenth century, in the sense that different groups of workers and different types of industrial activity are covered by a multiplicity of separate statutes dealing with safety and health at work.

APPENDIX 6
(see paragraph 27)

TABLE SHOWING THE MAIN STATUTORY PROVISIONS AND
CENTRAL INSPECTORATES CONCERNED WITH
SAFETY AND HEALTH AT WORK

Act	Subordinate Statutory Instruments	Approximate number of establishments affected(a)	Enforcing Authority	Size (authorised establishment) of Inspectorate in 1971 1960		Administering Department
Factories Act 1961	247	206,700(b)	Factory Inspectorate and others(c)	714(d)	448	Department of Employment
Offices, Shops and Railway Premises Act 1963	21	755,800	Factory Inspectorate and Local Authorities	See footnote (e)		Department of Employment
Mines and Quarries Act 1954	55	4,946	Mines and Quarries Inspectorate	135	165	Department of Trade and Industry
Mines and Quarries (Tips) Act 1969	3					
Agriculture (Poisonous Substances) Act 1952	14(f)	112,660	Safety Inspectors and Field Officers of the Agriculture Departments	44(g)	70(h)	Ministry of Agriculture, Fisheries and Food
Agriculture (Safety, Health and Welfare Provisions) Act 1956				11(i)	10(1)	Department of Agriculture and Fisheries for Scotland
Explosives Acts 1875 and 1923	60(1)	35,000(k)	Explosives Inspectorate and Local Authorities	9 (Local authorities have the major share of the work— see footnote (k))	4	Home Office
Petroleum (Consolidation) Act 1928	23(j)	40,000(l)	Local Authorities			Home Office
Nuclear Installations Acts 1965 and 1969	5	29(m)	Nuclear Installations Inspectorate	46	15	Department of Trade and Industry
Radioactive Substances Act 1960(n)	20	3,000	Radiochemical Inspectorate	6	5	Department of the Environment
Alkali etc. Works Regulation Act 1906	2	1,700	Alkali and Clean Air Inspectorate	36	27	Department of the Environment
Alkali etc. Works Regulation (Scotland) Acts 1906 and 1951	2	200	Scottish Industrial Pollution Inspectorate	4	3	Scottish Development Department
Mineral Workings (Offshore Installations) Act 1971	—	40	Petroleum Production Inspectorate	9		Department of Trade and Industry

Footnotes:

- (a) The figures of establishments affected overlap to some extent because some establishments are subject to more than one of the Acts listed.
- (b) Includes factories, docks, shipyards and warehouses. Construction sites are excluded because it is not possible to put a reliable figure on their number.
- (c) Certain provisions in the Act are enforced by local authorities. Fire prevention provisions are enforced partly by the Factory Inspectorate and partly by fire authorities.
- (d) Including 40 assistant inspectors.
- (e) Enforcement is undertaken by local authority inspectors and the Factory Inspectorate, in conjunction with their other duties.
- (f) Includes the Agriculture (Avoidance of Accidents to Children) Regulations 1958 which apply to all agricultural holdings irrespective of whether persons are employed. The number of holdings covered by these regulations is 271,664.
- (g) Full-time safety inspectors in England and Wales. In addition, in 1971 some 425 agriculture field officers undertook safety inspections in combination with other duties, they spend rather more than a quarter of their time on safety work.
- (h) In 1960 there were no full-time safety inspectors; the 70 agriculture wages and safety inspectors spent about half of their time on safety work.
- (i) Agriculture wages and safety inspectors who spend about one-third of their time on safety matters.
- (j) A number of statutory instruments are concerned with dangerous substances other than in workplaces.
- (k) The Explosives Inspectorate is responsible for 170 explosives factories and magazines. Local authorities are responsible for about 35,000 explosives stores and registered premises.
- (l) Includes 21 refineries and 500 major distribution depots. The remainder are mainly petrol filling stations.
- (m) The Nuclear Installations Inspectorate does not inspect or licence nuclear installations operated by government departments or the United Kingdom Atomic Energy Authority.
- (n) The information given relates to England and Wales. In Scotland the Act is enforced by the Scottish Industrial Mineral Inspectorate of the Scottish Development Department.

APPENDIX 7
(See paragraphs 130 and 435)

CASE LAW AND ACCIDENT PREVENTION

1. We have said in this report that judicial interpretations of the statutory safety provisions have from time to time created (or exposed) problems for the authorities concerned with the prevention of accidents. Our study of the evidence indicated that the interests of safety are not always served by the results of the application, interpretation and development of legal rules through the process of judicial precedent. This note sets out to deal briefly with the broad question of the relationship between case law and the principles and practice of accident prevention.

2. Any statutory safety provisions, whether contained in an Act of Parliament or in subordinate regulations, will be subject to judicial scrutiny. In both civil and criminal proceedings, the legal provisions will be tested as to their application to particular circumstances; as to their meaning and exact scope; and as to their appropriateness to new, unanticipated situations. They will be subject to arguments based on general principles and to arguments about the interpretation of detail. The courts do not approach individual cases with a view to supporting or strengthening the legal rules' contribution to safety. They conceive it to be their duty to interpret the law as laid down, and to apply it logically to the particular facts of each case. Such principles as do apply are those which have been developed by the courts to further this process.

3. Practical pressures tend to push against the concept of the rules as instruments to be viewed and treated primarily in the context of their essential purpose and function of securing safety. Cases arise in two forms, criminal and civil. They may be criminal prosecutions brought under the various statutes which as a general rule provide for criminal sanctions to back up their provisions. The basic assumption of a criminal court is that any uncertainty must be resolved in favour of the accused. Any extension of the scope and application of the criminal sanctions is regarded by the courts as the concern solely of Parliament. Civil cases arise where an injured workman makes a claim for damages against his employer (as, say, the occupier of a factory) and bases that claim, at least in part, on an alleged breach of statutory duty. There will often be a parallel and perhaps overlapping claim based on the rules of common law negligence. Where the employer contests liability he (or more usually the employer's insurers, using the employer's name) will often feel obliged to base his case on the contention that the rules in question do not apply.

4. Development of the rules through case law takes place at two levels. First, the courts have established certain fundamental notions, such as foreseeability and causation, which form part of the general shape of the law. There are also series of detailed decisions which give shape to particular areas. It is impossible to cover all of this ground, but some illustrations will serve to describe the process.

5. Perhaps the most fundamental principle is that of absolute liability. The courts have been careful to distinguish between those obligations placed upon a person which are absolute—that is to say those which if broken impose liability without proof of fault—and those which are not absolute, that is to say where fault has to be proved either by the prosecution in a criminal case, or by the claimant in a civil case. Often—but not invariably—the provisions of the statute qualify the duties in question by the use of such phrases as 'as far as is reasonably practicable'. Even where the duty is absolute, as in the case of the fencing provisions of s. 14 (1) of the Factories Act 1961, concepts such as foreseeability may be used to soften impact. Thus the leading case of *Close v. Steel Company of Wales*

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Ltd. (1962) A.C. 367 established beyond doubt the concept of foreseeability by saying that a part of a machine is dangerous only if the danger can be reasonably foreseen. This has the effect of moving the law in the direction of the less stringent standard—fault liability—which, paradoxically, is the one that is closer to practical considerations of accident prevention. It is a practical impossibility to require that a person guards against a danger that is not apparent or discoverable.

6. Another topic of great legal interest is causation. The question of who is responsible is important both in the assessment of fault liability and in the formulation of safety precautions; but in civil proceedings the determination of responsibility often turns on the exclusively legal issue of where the burden of proof lies. Thus if it is decided that the claimant must show how his accident happened, establish who was responsible for causing it, then his chance of success is reduced. On the other hand if the occupier of a factory has to show that he did not cause the accident, his position becomes difficult. It will be apparent that the question of who has to establish the cause is not the same as the question of who should have taken steps to avoid the accident.

7. Discussions of this sort occupy a great deal of legal attention, but generally their outcome has little effect one way or another on the operation of the statutory safety provisions. Sometimes, however, a judicial decision does have a marked effect. The best example is the opinion, expressed in *Hindle v. Birtwistle* (1897) 1 Q.B 192 and in a line of later cases (the latest is *Close v. Steel Company of Wales Ltd.* (1962) A.C. 367) where the courts have decided that a dangerous part must be fenced for the purpose of preventing the body of the operator from coming into contact with the machine, but that the statutory duty to fence does not extend to preventing fragments flying out of the machine. It should be noted that if such flying-out is foreseeable, there may be liability for negligence in common law; but there is no statutory duty to fence against such a danger. A moment's reflection, away from the technicalities of the law, is enough to see that this judicial interpretation is contrary to the interests of accident prevention. It is arguably an unnecessary decision (the statutory provisions say that 'every dangerous part of any machinery . . . shall be securely fenced . . .') but the balance of logic probably supports the view adopted. Safety considerations would, on the other hand, lead to the opposite view, a view which is not incompatible with the wording of the statutory provisions and which could have been reached without undue criticism. It seems scarcely credible that the law on this point should have been left in such an unsatisfactory state for over 70 years, without statutory amendment.

8. Other instances can be quoted to illustrate specific problems that have arisen from judicial decisions which, whilst in themselves logical and legally sound, have nevertheless had adverse effects in relation to accident prevention provisions. For example, judicial interpretations of the definition of a factory have had the effect that many places which at first sight would appear to be covered by the Factories Act are not. The best example is the pump room in a water undertaking. In *Longhurst v. Guildford, Godalming and District Water Board* (1963) A.C. 265 it was held that the definition of a factory, which includes the words 'the making of any article' and 'the adapting for sale of any article' (Factories Act 1961, s. 175(1)(a) and (c)) did not cover a pump house. Ironically it did cover a filtration plant which processed the water. Two spectacular defects which were thrown up by case law have since been cured by amendment of the Act. Thus the original provisions covering floors, passages and stairs provided that they should be of sound construction and properly maintained. It was held in case law that this did not refer to obstructions or slipperiness, but merely to the way they were constructed. This was remedied in s. 4 of the Factories Act 1959 (now in s. 28 of the 1961 Act). In a somewhat similar way it was held that the original section providing for safe means of access to a place of work did not mean that the place of work itself had to be safe! This was put right by s. 5 of the Factories Act 1959 (now covered by s. 29 of the 1961 Act).

9. The examples discussed above are of decisions which have clearly led to a divergence between the law as interpreted and practical safety considerations. Of equal importance are those areas where the law is uncertain, since uncertainty is bound to cause practical difficulty. Although provident employers will 'play safe', there will be no sure ground upon which to deal with those who do not. Two examples will suffice. One concerns the important problem which arises where a machine as guarded is safe in itself, but is dangerous when it is working on material. This has led to divergent decisions—*Lewis v. High Duty Alloys Ltd.* (1957) 1 All E.R. 740 being in favour of the no liability view, and *Hoare v. M. and W. Grazebrook Ltd.* (1957) 1 All E.R. 470 coming down in favour of liability. The latter view, the right one from the safety aspect, has been approved by the House of Lords in *Midland & Low Moor Iron and Steel Co. Ltd. v. Cross* (1965) A.C. 357. But there are many unresolved subsidiary issues such as the question of a stationary part made dangerous by a moving workpiece coming close to it; or a moving part coming close to another object extraneous to the machine (here there would appear to be no liability); or the distinction which has been made between a stationary part of the machine (where there is liability—*Irwin v. White, Tomkins and Courage Ltd.* (1964) 1 All E.R. 545) and a stationary object extraneous to the machine (where there is *not*—*Pearce v. Stanley-Bridges Ltd.* (1965) 2 All E.R. 594). A similar difficulty arises over s. 16 of the Factories Act 1961 which requires that fencing must be provided and kept in place whilst the parts to be fenced are 'in motion or use'. This phrase has attracted a great deal of case law. The effect of the law seems to be that if the machine is being turned over under power slowly or intermittently, or by hand, but is not being used for its normal purpose, then it is not 'in motion or use'.

10. In general, the effect of case law as described tends to complicate and hinder the safety effort. As a result of the application of general legal principles, of detailed decisions on particular aspects of the various statutory provisions, and of the emergence of difficult and perhaps unresolved legal complications—most of which arise in discussion of compensation rather than of safety—problems and difficulties are posed for those concerned with accident prevention. The very nature of the legal process is bound to produce such difficulties. There are, however, two possible lines of improvement. One is that a statutory formulation of the general principles of safety would serve as guidance for the courts in deciding cases involving safety legislation. Such an approach has been adopted in the Industrial Relations Act 1971. The other line of improvement would be to remedy obvious defects in the law more promptly. The length of time that well-known legal defects are allowed to persist, and difficulties are left to be endlessly argued about in litigation, is a matter for serious criticism. Perhaps the greatest improvement that could be suggested as regards the effect of case law on safety provisions is that there should be continual review and action to remedy obvious defects in the law as they arise. Already the Law Commission has set a general pattern. It is one that could usefully be applied in the particular field of safety legislation.

APPENDIX 8

(See paragraphs 137, 165 & 330)

THE 1967 PROPOSALS FOR NEW LEGISLATION ON SAFETY AND HEALTH AT WORK (THE FIRST CONSULTATIVE DOCUMENT)

1. The Minister of Labour announced on 30th June 1967 that preparatory work had begun on a comprehensive revision of the Factories Act 1961 and the Offices, Shops and Railway Premises Act 1963. In December 1967 the Department published for comment and discussion a First Consultative Document containing proposals for comprehensive revision and amalgamation of the two Acts.

2. The proposals in the First Consultative Document sought to make a number of fundamental improvements. The main objectives were as follows. The scope of the existing legislation was to be extended so as to give protection to as many as possible of those workpeople who were not covered by existing safety and health legislation. The new legislation was to be more enabling in character than the existing Acts, so as to provide a more flexible instrument for dealing with the problems of rapid technological change. Much wider provisions about safety training and instruction were to be included, as well as greater powers to provide for the safety of machinery, plant and equipment as supplied to the eventual user.

3. Comments on the proposals were received from over 300 organisations. Consideration of these continued throughout 1968 and 1969, and the Department held numerous meetings with interested bodies. These discussions led to a number of improvements in the proposals, but as the work proceeded doubts grew as to whether a Bill on the lines of the First Consultative Document would represent the best possible approach to improving standards of safety and health at work. Despite the deliberate attempt that was being made to modernise and strengthen the legislation, it appeared clear that the end product would be fundamentally the same kind of legislation as already existed. Moreover, revision of the Factories and OSRP Acts would still leave untouched an intricate body of legislation which impinged upon and to some extent overlapped with those Acts. It was against this background that a decision was reached in 1970 to set up the present Inquiry.

APPENDIX 9

ACCIDENT COSTS

In chapter 16 we have drawn attention to the need for further research into the economics of accidents and accident prevention, and to the limitations of present knowledge and techniques in this area. This Appendix contains three separate papers as follows:

Part I: The costs of an accident

Part II: Accident costs in coalmining

Part III: The national resource costs of occupational accidents and diseases.

These papers were made available to the Committee as illustrations of some practical approaches to various aspects of this complex subject. They are reproduced here as a contribution to discussion.

PART I—THE COSTS OF AN ACCIDENT (see paragraph 419)

Part I is reproduced, by kind permission, from the 'Management Action Plan' issued to members of the Engineering Employers' Federation in October, 1971. It shows cost items which the Federation suggests should be taken into account by employers, using as an example the costs arising from an accident involving a fork-lift truck which was driven too fast round a factory gangway corner.

<i>1. Cost of wages paid for the time spent by uninjured workpeople:</i>	
(a) assisting the injured person, or out of curiosity, sympathy etc., or	
(b) who were unable to continue work because they relied on his aid or output	
In category (a) 6 employees lost on average 20 minutes:	1.40
In category (b) 3 workers lost on average 60 minutes:	2.10
<i>2. Cost of material or equipment damage:</i>	
In this instance the casing of a 5 HP electric motor was cracked beyond repair and replaced by a new motor:	.. 60.00
Installation cost: 40.00
<i>3. Cost of injured worker's time lost:</i>	
Treatment for abrasion on leg, 2 hours lost at 60p per hour	1.20
<i>4. Supervisor's time spent assisting, investigating, reporting, assigning work, training or instructing a replacement and making other necessary adjustments:</i>	
One and a half hours at 80p : - -	1.20
<i>5. Wage cost of decreased output by injured worker after return to work:</i>	
4 days at 2 hours/day light work:	.. 5.60
<i>6. Medical cost to the company:</i>	
(A reduction in accidents does not necessarily mean lower expenses for running the works medical centre) 3.50
<i>7. Cost of time spent by administration staff and specialists on investigations or in the processing of compensation questions, HM Factory Inspector reports, insurance company and Department of Health and Social Security correspondence etc.</i>	
Low in this case: ..	. 5.00
TOTAL:	120.00

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Additional Charges

Other cost elements not applicable to this accident but which must be considered in others include:

Overtime necessary to make up for lost production.

Cost of learning period of a replacement worker.

A wage cost for the time spent by supervisors or others in training the new worker.

Miscellaneous costs (includes the less typical costs, the validity of which will need to be clearly shown with respect to each accident):

—renting equipment

—loss of profit on orders cancelled or loss if the accident causes a net long-term reduction in sales

—cost of engaging new employees (if this is significant)

—cost of excess spoilage of work by new employees (if above normal)

—attendance at court hearings in contested cases.

Costs such as these are present in nearly every accident. A minor injury needing some medical attention (with no attendant property damage) can cost £1.50, whereas the cost of a time-losing injury can be at least £300.

PART II—ACCIDENT COSTS IN COALMINING (see paragraph 419)

Part II is a paper prepared by the Department of Trade and Industry in response to the Committee's request for information about costs. The Department has kindly agreed to its publication here as a contribution to discussion. We have been asked to make it clear that the Department is well aware of the limitations of the broad approach adopted in the paper. Extensive research would be needed to produce more detailed figures.

1. The cost of accidents to individual mine and quarry undertakings has been assessed from time to time by the staffs of these industries—notably of the National Coal Board. The figures which have been produced and published in professional and safety journals very naturally tend to be related to the costs of accidents to the industry, and to neglect the wider costs which fall on the state or on the community at large. Usually the only figures known with any accuracy are the direct payments made by the undertaking to victims of the accidents and their dependents in the form of compensation and sick pay. It is usually possible to make some sort of estimate of the cost to the undertaking of absences due to accidents based on the average productivity of workmen, though this would seem to greatly underestimate the true cost. To obtain a more accurate picture needs a highly sophisticated investigation and follow-up of every accident, which would be difficult and expensive in an industry in which accidents are frequent.

2. The results of an American survey (published in 1963 by the US Bureau of Mines) showed that most companies with good safety records were cost-conscious. It may be of interest to compare the figures—compiled in the 1950s—for one American mining company involved in the survey with figures published by the NCB's Chief Safety Officer in 1967.

<i>Type of Accident</i>	<i>Estimated cost per person injured</i>	
	<i>NCB</i>	<i>American Mining Company</i>
Fatal	£10,000	
Serious	£ 5,000	
Other (over 3 days)	£ 1 30	\$5,470 to \$16,400
Other (lost time)	not available	

The American figures are a range based on an average direct cost of \$1,093 (comprising insurance, compensation and disability payments, medical costs and the expense of employee replacement) and indirect costs of from 4 to 14 times that figure.

3. The above figures are admittedly estimates and deal solely with the cost to the employing undertaking. In order to assess the overall cost of accidents, it is necessary to take into account also the costs to the state and to the community at large. The main factors in any such calculation are set out in some detail in the Annex to this note. It is apparent from this list that many of the costs which can be quantified will differ widely according to

- (a) the age, qualifications, and other personal circumstances of the victim,
- (b) the severity of the accident,
- (c) the direct cause of the accident,
- (d) the type of undertaking at which he is employed.

In addition, the way in which costs are distributed will also vary according to circumstances. Some accidents may cost the undertaking relatively little, even though the accident is severe in human terms, but may impose a heavy burden on the state and the community. On the other hand, a comparatively trivial accident may occur in circumstances which involve the undertaking in considerable expense.

4. Investigations in the coal industry have also shown that the average absence from work due to accidents differs widely as between different parts of the country, apparently for reasons unconnected with the nature of the injuries or the conditions of the work.

5. Because of the large number of variables and the lack of data it would be extremely difficult to arrive at an overall cost of accidents in the mine and quarry industries, or in any other industry, and to allocate them correctly. What is evident is that the number of accidents is so great that the aggregate costs falling on both the state and the community are very large, and that the costs to particular undertakings may be of considerable economic significance especially in those industries where accidents are frequent and where the occurrences giving rise to them may involve considerable interference with production. The Department of Trade and Industry encourages undertakings to have regard to the cost of accidents, and indeed many of the more efficient undertakings are very cost-conscious. But because of the widely differing circumstances of undertakings and differences in their accident experience, average figures worked out over the whole of a particular industry are unlikely to have much impact in securing the acceptance of safety measures.

6. Humanitarian considerations apart, measures for accident prevention cannot reasonably be based on the experience and cost of past accidents alone. For example, it would be imprudent to do so in the nuclear field where, because the immense costs in human and financial terms of a catastrophic accident are universally appreciated, the objective is to do all that is practicable to eliminate the possibility of major accidents. The magnitude of the potential costs has been recognised in the international conventions, and in the UK law on liability for damage from nuclear installations which provides for up to £50 million to meet claims from the public for compensation, reinforcing the operators' own public liability of £5 million for any one accident. Damage to the installations (with capital costs of up to £100 million) could be just as costly, and in the case of a disabled power station there would also be the additional costs of more expensive replacement for electricity generation. These potential consequences justify the special measures taken for the safety regulation of nuclear installations, even though there is, happily, little practical experience of past accidents. In the UK the Windscale accident of 1957 (before the licensing and inspection of commercial installations was instituted) is the only example of an accident affecting the public. It caused no personal injury, although compensation

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of about £63,000 was paid for contaminated agricultural produce which was destroyed as a precaution. Otherwise, accidents in the industry since the Nuclear Installations Act 1959 set up the inspection system have been very few; claims have been made but there have been no cases where 'nuclear' injury has been proved to be due to employment on a nuclear installation, although both the United Kingdom Atomic Energy Authority and the Central Electricity Generating Board have made ex-gratia payments in isolated cases. Similarly, accident potential may be important in other circumstances when safety measures are under consideration for new and untried machinery or processes. However, when considering the value of any safety measures, including research projects, it is usually possible to get at least a general picture of the value of the measure by having regard to:

- (a) the frequency of the accidents which the measure is designed to prevent,
- (b) the number of occurrences which might cause the accident,
- (c) the potential cost both of the accidents to persons and of the dangerous occurrences which give rise to them.

7. This approach is perhaps best illustrated by examples :—

- (a) In 1969 there were some 29 ignitions underground at coal mines and 44 mine fires, any of which might have resulted in an explosion causing the loss of several hundred men and the destruction of the pit. Two men were killed and seven seriously injured by these particular occurrences, though a large number were less seriously involved. It is, however, a fact that the last serious fire (Michael Colliery in 1967) in which persons were killed, caused the loss of the pit; another fire (Ogilvie, February 1971) caused no personal injuries but part of the pit was lost permanently. Other recent accidents occurring in the United States and elsewhere have been much more serious in human terms. The loss of a pit involves the loss of an investment of many millions; the loss of a single face may involve capital equipment worth £ million plus the costs of sealing off and the loss of production and reserves. In addition, of course, there may be considerable social costs.
- (b) Again, in 1969, four men were killed and twenty eight received serious injuries because of accidents involving steel chain used for hauling coal-getting machinery at the face. But, in that same year, a large number of chain breakages on one particular power loader face were recorded. Although each breakage would have been accompanied by a sudden release of energy sufficient to kill or maim persons and seriously damage equipment, no one was in fact killed or seriously injured at the face in question. Nevertheless each breakage cost money to repair and involved some loss of production which in total may well have been of the order of 20,000 tons of coal. Thus, in money terms, the cost of the chain breakages on one or two faces may well have been comparable with the cost to the employer (using the figures quoted in para 2 above) of the fatal and serious accidents due to chain breakage on all the 900 faces then in operation.

8. It seems fair to conclude from the above examples that a continuing effort to reduce the incidence of ignitions and mine fires is economically worth-while and that measures to reduce the number of chain breakages at the face, which would also reduce the probability of accidents to persons, is also attractive. In both cases the direct costs of the incidents to the employer were probably a good deal greater than the money costs to the state and the community of the personal injuries actually suffered. On the other hand accidents due to slipping or falling on the way to the working place probably interfere very little with production but involve the state and community in considerable expense owing to their frequency. The Department of Trade and Industry must clearly have regard to the totality of costs, irrespective of where they fall, as well as to humanitarian considerations, when deciding what legislation or other action is called for.

9. It must, however, be recognised that special studies may be necessary in order to get some idea of the frequency of incidents (as in example (b) in para 7 above) which are

potentially the causes of accidents, and that in practice it is impossible to extend the list of 'dangerous occurrences' which undertakings are obliged to report to HM Inspectors so as to cover all the items of which it would be desirable to keep records. On the other hand there are no doubt many undertakings which could with advantage to themselves and to safety adopt this 'damage control' approach to incidents causing accidents and interruptions to production.

Cost-effectiveness of safety measures

10. The preceding paragraphs show that it is possible to identify the areas in which safety measures are likely to be economically worth-while though, as already pointed out, this may involve special and lengthy studies. It is much more difficult to ascertain how far particular measures are, in the event, cost-effective. Comparison of accident or dangerous occurrence rates at best give only a very rough indication of the trends in a particular sector since:

- (a) the probability of accidents in that sector is constantly changing because of technological advance, changes in working practices, geological conditions and the like e.g. the much greater use of conveyors and electricity below ground has contributed to the fact that the number of underground fires reported has changed only slightly over the last 10 years despite the decline in the number of working collieries. On the other hand the number of cases of electrical burns and shock fell by 76% over the same period ;
- b) it is usually impossible to isolate the effect of any one measure on a particular hazard e.g. the decline in the number of men killed and injured as a consequence of ignitions of gas and mine fires is undoubtedly due to a large number of measures some of which—e.g. the regulations requiring the use of approved explosives, flameproof and intrinsically safe electrical equipment, ventilation, and safety lamps—have helped to reduce the probability of ignitions and fires while others governing e.g. stone dust barriers, fire fighting equipment and ventilation, have limited the consequences of the fires and ignitions which actually occurred.

I I. His equally difficult to ascertain or isolate the cost of safety measures. For example, there are no ready means of distinguishing between safety and other training, or of calculating the additional cost of safety features in the design of equipment. Similarly the cost of safety officers or of safety departments can seldom be attributed wholly to accident prevention since much of their work is a consequence of the accidents which actually occur and would have to be performed by some other branch of the undertaking if no safety officer or branch existed.

Adequacy of the resources devoted to health and safety

12. The list of cost headings in the Annex to this paper demonstrates that the employer, the state and the community at large all have a considerable financial interest in preventing accidents and ill health. Nearly all undertakings which are active in the field of safety recognise that, in general, these activities are not only worth-while economically but essential to good labour relations and a good public image. There are undoubtedly many undertakings which could do more with advantage to themselves and to the community, at least in the long run.

13. The associated question whether the state ought to do more in its own interest and that of the community is a matter for political judgement and one which cannot be decided on financial grounds alone. But the following figures, which relate solely to the coal industry and are based on accident statistics in NCB mines, March 1967 to 1968, give at least a rough idea of some of the quantifiable costs attributable to accidents on which savings might accrue from safety measures and which ultimately have to be borne by the community at large, either in the price of coal or in taxation and national insurance contributions.

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	<i>Number</i>	<i>Cost to Employer</i>	
		<i>Average per person</i>	<i>Total £ million</i>
Fatal accidents	133	£10,000 ¹	£ 1.3
Serious accidents	990	£ 5,000 ¹	£ 4.9
Compensable (over 3-day) accidents	162,507	£ 130 ²	£21.1
Other accidents involving some form of treatment	800,000 ²	£ 5 ³	£ 4.0
			<hr/> £31.3 <hr/> <hr/>

¹Based on the figures in para 2.

²On the assumption, based on figures at two collieries, that these accidents are five times as numerous as compensable accidents.

³Token figure.

These figures, large though they are, relate solely to the accidents which actually involved persons. But if the 'damage control' approach were used and the calculation based on the number of incidents which might have caused accidents and which safety measures are designed to reduce, the figure would clearly have been very much greater.

14. In the absence of any detailed and authoritative figures it is only possible to estimate in very broad terms the annual cost of coalmining accidents to the state.

<i>Cost to the State</i>	<i>£ million</i>
Fatal accidents (including deaths from industrial disease)	£
Disabling accidents and disease	£17
Compensable accidents	£ 7
Loss of insurance contributions (say)	£ 2
Cost of administration	
<hr/> £30 <hr/> <hr/>	

These figures are admittedly rough, being based on the proportion of certified days of incapacity (4-7 m.) lost through industrial injury and prescribed disease in 1968/69 in coalmining to all days (23m.) lost by the insurable population, applied to expenditure from the Industrial Injuries Fund in approximately the same period. The figure for disabling accidents and diseases allows for the high incidence of pneumoconiosis in the industry. To this should be added refunds of income tax, cost of medical treatment and the other expenses mentioned in the Annex to this paper. Comparison of the cost figure for compensable accidents with the figures in the previous paragraphs suggests that each compensable accident in coalmining cost the state approximately £40 in injury benefit and £7.50 to £9.00 in lost insurance contributions in the year in question.

15. The additional money costs which fall upon the community at large as the result of injury and ill-health are much the same whatever their cause, and raise issues which cannot be covered satisfactorily in a paper of this kind. That they are considerable is evident from the factors listed in the Annex to this paper. Information from insurance sources suggests that in 1967 the worst type of injury would have cost insurers under employers' liability policies between £15,000 and £20,000, and that similar injuries now involve awards of from £35,000 to £45,000, while amounts of up to £75,000 are not unknown.

16. The amounts quoted in paragraphs 14 and 15 above relate to some of the money payments actually made or forgone. A complete picture would involve estimates of the social costs of accidents and ill-health; this would raise very difficult problems of analysis which cannot be tackled in this paper.

17. In the fields of interest to the Committee the direct expenditure on safety and health matters by the Department of Trade and Industry is broadly as follows:-

1	Mines and Quarries	m.
2	Nuclear safety	£400,000
3	Oil exploration and production	£ 60,000
4	Pipe-lines	£ 11,000

The cost of administration_ is small in all cases. The main cost is in enforcement, except in the case of mines and quarries where the costs of the Safety in Mines Research Establishment (SIRE) and the Mines and Quarries Inspectorate are of approximately the same order.

Safety and Health Division
Department of Trade & Industry
7th May 1971.

Annex to Part II—Elements of accident costs

A. COSTS TO THE EMPLOYER

1. Sickness or other payments made either under the contract of employment or ex-gratia both immediately and in respect of subsequent absences wholly or partially attributable to the accident.
2. Compensation paid under legal liability or ex-gratia to the man or his dependents.
3. Expense of investigating the accident and, in some cases, preparing and defending a case.
4. The cost of obtaining, training and deploying a replacement for the injured man and any loss of efficiency or production resulting from the employment of a relatively unskilled or inexperienced man.
5. Loss or damage to plant or investment caused by the accident.
6. Actual loss of net revenue as a result of the accident, including in some cases loss under contracts and even of markets.
7. The extra cost of remedial measures to insure against further accidents.
8. Cost incurred or losses sustained as a result of lower morale or of friction with workpeople.

B. COSTS TO THE STATE

1. The amount of any benefit paid under the industrial injuries scheme and of any subsequent sickness benefit attributable in whole or in part to the accident.
2. The amount of any supplementary benefits payable to the man or his dependents.
3. The cost of making such payments.
4. The cost to the public services of investigating the accident, trying any legal issues and enforcing judgement.
5. The cost of hospital or other medical treatment including rehabilitation and retraining.
6. The amount of any refund of tax actually made to the victim plus the loss of future taxable capacity.
7. Loss of tax due to the reduced profitability of the employing undertaking.

C. COSTS TO THE COMMUNITY AT LARGE

1. The costs of investigating the accident and of the prosecution of any claim for damages in so far as they are not borne by the state or the employer.

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2. The net loss, temporary or permanent, of the goods or services provided by the injured person or by others whose services are required to look after him.
3. Costs falling on the injured man himself, friends, dependents, insurance companies and benevolent or other funds.

PART III—THE NATIONAL RESOURCE COSTS OF OCCUPATIONAL ACCIDENTS & DISEASES (See paragraphs 11 and 422)

Part III is a paper prepared for the Committee by staff of the Research and Planning Division of the Department of Employment.

1. Introduction. Accidents and injuries at work result both in personal loss and in resource costs for the economy as a whole. The valuation of personal loss is discussed in paragraph 13 of this note, but we are primarily concerned with estimating the national resource costs associated with industrial accidents and diseases. For this purpose it is important not to count costs such as employers' contributions to the National Insurance Fund, which in national accounting terms are transfers and not a national resource loss.

2. Because of limitations of data, a number of assumptions have been made. These are clearly stated, and where necessary both a conservative and a 'best' estimate have been made. In the event, the conservative calculation did not differ greatly from the main one.

3. Estimates of the cost of industrial accidents have been made by Beckingsale in 1963¹ (£264 m.), Hanna in 1970² (£220 m.) and others. Figures for other countries have been published in a colloquium by the International Social Security Association.³ Estimates made have sometimes added together costs of different kinds, and have not always distinguished between transfer and resource costs, or between costs to employers, to the Exchequer, and to the economy as a whole. Associated work has been published by Dawson⁴ on road accidents. Evaluating the cost of absenteeism from work⁵ presents similar problems to those discussed here.

4. The two main sources of data on industrial accidents are HM Factory Inspectorate and the Department of Health and Social Security. Information available from these two sources differs in coverage and intent. The paper therefore makes separate estimates based on each of the two sources, using two different approaches. The main estimate is based on the more comprehensive DHSS data, but for some purposes the HMF I figures may be more useful. A very similar result was obtained for average resource costs from the two sets of figures—see paragraphs 12 and 18. Both estimates refer to 1969, the latest year for which detailed figures are available, and can therefore be cross-checked to some extent against each other.

A. Estimate using DHSS data

5. Fatalities are covered by statistics of industrial death benefit, while non-fatal accidents are covered in the statistics of industrial injury benefit.

6. Fatalities. In 1969, the number of deaths attracting awards of industrial death benefit was 1,918, of which 445 were over 65. The extent of non-qualification for benefit is unknown, and the following figures may be a little conservative.

(i) Ambulance costs (£15 per death) (1,918 persons)	28,770
(ii) Hospital costs (1,918 in-patients for 2.4 days at £7.957 per day)	36,628
(iii) Output lost over working life (1,473 persons)	20,131,920
	<hr/>
TOTAL	20,197,318

The Annex to this paper describes the detailed method of these and other calculations.

7. Industrial accidents (excluding prescribed diseases—see paragraph 8). For reasons described in the Annex, the injury benefit statistics, which show spells of incapacity for work in great detail, underestimate the resource costs of accidents. Nevertheless, they make possible a very detailed calculation.

(i) *Costs of periods off work*

These were derived by applying average earnings by age, sex and industry to the number (841,680) and length of spells of incapacity. The total lost output attributable to incapacity was £84,541,384.

(ii) *Hospital and medical costs*

(a) In-patient costs

Severity of accident and attendance as an in-patient had to be inferred from data that was available. Because of this two estimates were made, severity being defined as occurring to both 5 per cent and 10 per cent of total spells. The results under these two assumptions were:

5 per cent	10 per cent
£3,683,486	£7,366,972

(b) Out-patient costs

The percentage of those requiring out-patient treatment was derived, and the cost for this item was £1,259,622.

(c) Slight injuries

£3 was estimated for first-aid, general practitioner and any out-patient costs associated with slight injuries. When applied to each of the 641,168 spells of incapacity left after accounting for in-patients (10 per cent figure) and out-patients, this gave a total of £1,923,504.

(d) Ambulance costs

It was assumed that these costs applied to in-patients, and that certain injury cases would have required an ambulance even if they were not in-patients. The best procedure seemed to be to take the 10 per cent severity numbers and apply £15 per case to them. This resulted in a conservative estimate of £1,262,520. At 15 per cent the ambulance costs were £1,893,600.

Total hospital and medical costs

(conservative estimate)	£8,129,132
(best estimate)	£12,443,698

(iii) *Damage and administration costs to the employer*

This aspect of costs has not been well documented. Examination of the DHSS statistics showed that over half the spells of incapacity occur in industries where damage costs could be expected to be large rather than small. Estimates for engineering firms indicate average figures ranging between £30 and £100.⁶ An arbitrary figure of £30 per spell gave an amount of £25,250,400. At £50 per spell, this rose to £42,084,000. Damage and administration costs were not attributed to prescribed diseases or pneumoconiosis.

8. Costs associated with prescribed industrial diseases. The resource costs attributed to these diseases included lost production due to incapacity, and medical costs.

(i) *Output lost due to incapacity from prescribed diseases*

For each industry, and for men and women separately, output lost was the number of spells multiplied by age-weighted earnings and length of spell. The total for all industries was £3,283,218 (£2,738,026 for men and £545,192 for women).

(ii) *Medical costs*

These were derived in the same way as those for industrial accidents.

(a) In-patient costs

5 per cent estimate	10 per cent estimate
£151,724	£303,448

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(b) Out-patient costs
9,136 spells at £6.58 per spell came to £60,115.

(c) Slight diseases
15,380 spells at £3 per spell came to £46,140.

(d) Ambulance costs were felt to be inapplicable.

Total costs for prescribed diseases = £3,692,921.

9. Incapacity longer than six months. The estimate of lost output took account only of those persons incapacitated for up to six months. Accidents and prescribed diseases may of course keep persons out of work for longer than this, if not permanently. Statistics of sickness benefit following on from injury benefit were used to assess this factor, and the total loss in output was valued at £8,154,231.

10. Non-reportable minor accidents. For the most part, accidents to machinery and property are not reportable, and spells of incapacity of less than four days are not necessarily reported to DHSS. If we apply a ratio of 1:30 between 841,680 actual spells and minor accidents,' the figure for unreported minor accidents is 25,250,400. If costed at £1.50 per accident, to allow for lost output and medical and damage costs, this would add a further £37,875,600 to our estimates. This estimate was based on DHSS figures of industrial accidents excluding prescribed diseases.

11. Other factors in costs. These calculations enable an estimate to be made of the main cost elements that result in resource losses for the economy as a whole. Some minor elements have been left out, for lack of evidence. Of these, the main ones are:

- (a) legal and insurance administrative costs;
- (b) decreased output from injured or sick workers on their return to work;
- (c) training costs attributable to, or following on, accidents at work.

Expenditures on government inspectorates and their administration were attributed to accident prevention. An increase in such expenditures would be expected to lead to a decrease in accidents. The cost of accident prevention should normally be compared with the benefits arising from such measures (i.e. reduced accidents and resource costs), and not included in the resource costs of accidents.

12. Main summary of resource costs using DHSS data.

Resource costs of industrial accidents and prescribed industrial diseases in 1969

	£m (conservative estimate)	£m (best estimate)
(a) Fatalities	20.2	20.2
(b) Industrial accidents		
—lost output	84.5	84.5
—medical and hospital costs	8.1	12.4
(c) Damage and administration costs	25.2	42.1
(d) Prescribed diseases	3.5	3.7
(e) Long-term incapacity	8.1	8.1
(f) Non-reportable accidents	37.9	37.9
TOTAL	187.5	208.9
<hr/>		
Average resource costs were		
Fatalities (per person)	13,701	13,701
Industrial accidents and diseases (per spell of incapacity)	149	175

Average resource costs were calculated for industrial accidents by taking the total costs of items (b), (c), and (e) in the above table and dividing them by the total number of accident spells of incapacity. Because spells of incapacity are not exactly equivalent to persons experiencing accidents, the average cost per person is slightly higher than that shown per spell. Resource costs as calculated above amounted to 0.54% of GNP in 1969.

13. Subjective costs. Accidents give rise to subjective or 'warm blooded' costs as well as resource costs. Following Dawson,¹ the subjective costs reflecting personal suffering and bereavement were calculated as:

	£m (conservative estimate)	£m (best estimate)
Fatalities	9.59	9.59
Serious injury	21.04	42.08
Slight injury	79.96	75.75
Total subjective costs	110.59	127.42

When subjective and resource costs are added together, the total costs of accidents and industrial diseases in 1969 amounted to 0.87% of GNP.

B. Estimate using HMFI data

14. Fatalities. There were 649 fatalities reported under the Factories Act in 1969. Costs were estimated as being due to

(i) ambulance costs	£9,735
(ii) hospital costs	£12,394
(iii) output lost over working life	£8,254,914
	£8,277,043

15. Industrial accidents. An accident at premises within scope of the Factories Act becomes legally notifiable to HMFI if it causes absence from work for more than three days. Resource costs are made up as follows:

- 1 Total lost output was estimated by applying figures for average wage and average time off work to the total number of accidents (minus fatalities).
2. Hospital costs. These were estimated using an analysis which split up the injured into three groups—in-patients, out-patients, and slight injuries. Ambulance costs were also estimated, and were included here.
3. Damage and administration costs to the employer. On a fairly arbitrary basis we have made estimates based on £30 and £50 per accident.

These calculations result in the following figures:

1. Lost output	£34,413,578
2. Hospital and medical costs	£4,198,603
3. Damage and administrative costs	
at £30	£9,671,700
at £50	£16,119,500
TOTAL (conservative estimate)	£48,283,881
(best estimate)	£54,731,681

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16. Under-reporting. A DHSS/HMFI 21-7 random sample in 1969/70 showed that 27% of the accidents which were clearly reportable under the Factories Act had not been reported. The proportion of severe injuries in the unreported cases (7.5%) was significantly lower than in the complete 5% sample of all reported cases (18.4%). If we assume there was 27% under-reporting, then the real total of accidents was 441,630. Of this increase of 119,240 if 7.5% were severe this means a further 8,943 severe injuries. If we apply to these figures resource costs for lost output, damage, and hospital treatment this gives an additional cost of:

£17,390,152 (if we use the £30 damage cost figure) or

£19,774,952 (if we use the £50 damage cost figure).

These estimates are given in more detail in the Annex.

The resultant figures may be conservative as the extent of under-reporting in the construction industry, for example, is about 40-50%.

17. Non-reportable minor accidents. These comprise two types:

- (i) personal injury accidents which result in less than four days off work;
- (ii) accidents involving 'damage only' to machinery or products.

The estimates made so far will give an underestimate of the real cost of accidents. If we use the ratio of 1:30 between reportable accidents and minor accidents, and a figure of £1.50 for damage and disruption costs, this adds £14,507,550 to our estimates.

18. Summary of resource costs using MIN data. Our calculations are best viewed as a range of figures, the acceptability of which will depend to a large extent on the acceptability of the assumptions used—generally the assumptions are Conservative ones.

	Assuming damage cost per accident of:	
	£30	£50
(a) Fatalities	£8,277,043	£8,277,043
(b) Industrial accidents (output lost, damage and hospital costs)	£48,283,881	£54,731,681
(c) Under-reporting	£17,390,152	£19,774,952
(d) Non-reportable accidents	£14,507,550	£14,507,550
TOTAL	<u>£88,458,626</u>	<u>£97,291,226</u>

Average resource costs of reported accidents:

	Assumption of damage cost:	
	£30	£50
(a) Fatalities	£12,784	£12,804
(b) Industrial accidents	£150	£170

19. Subjective costs. These are an estimate of the intangible value of life and good health free from accident or disease. (A more detailed explanation of subjective costs follows in the Annex.) We have applied the figures used by the Road Research Laboratory of £5,000 for a fatality, £500 for a serious injury and £10 for a slight injury. The figures are necessarily arbitrary but do give some indication of a cost which should not be excluded from the calculation. Applying these figures to accidents reported under the Factories Act gives a total of £31,052,130, or £36,626,000 if the estimate of non-reported accidents is included.

Annex to Part III

Method of calculation of resource costs

DHSS and HMFI statistics

1. The scope and content of the two sets of statistical analyses are different. HMFI statistics relate to employed persons killed or injured in legally notifiable accidents occurring in factories or other workplaces subject to the Factories Act. DHSS statistics are concerned with the effects of accidents arising out of and in the course of employment which is insurable under the National Insurance (Industrial Injuries) Act.⁹ HMFI statistics thus relate to a large but restricted sector of industry, whereas DHSS statistics cover the whole field of employment. Wherever common ground existed (e.g. ambulance costs, and damage costs), the same money values were applied to the two sets of statistics.

A. The estimate using DHSS statistics

2. Fatalities (Part III, paragraphs 5, 6). The figure of £15 for ambulance costs was taken from Dawson⁹ and that for hospital costs from the Hospital Costing Returns for 1969-70.⁹ Duration of in-patients in hospitals was from Dawson. The number of deaths attracting awards of industrial injuries death benefit each year has been stable at about 2,000 since 1949.¹⁰ Some under-reporting is implied by these figures, since those completely without dependents would not be included.

3. The estimate of the value of lost production associated with fatalities was made as follows. All those up to age 65 whose death attracted death benefit (1,473 persons in 1969) were assumed (had they lived) to have been liable to the probability of dying or leaving the workforce as shown in the Working Life Tables.¹¹ These indicate the probability of leaving the working population through death, retirement, illness and other causes. Since they are available for 1955 only, current working life probabilities were estimated by comparing the 1955 Working Life Tables with the 1955 ordinary Life Tables, and applying the factor for each age to data (1x) in the 1967-9 Life Tables. Since very few women die from industrial accidents, male life tables only were used. Having thus adjusted the figures and estimated the years worked by the 'survivors' from 1969 (year 1), the present value of their lost production was calculated as

$$\sum_{t=1}^{n-1} StE_1 \left(\frac{1+a}{1+r} \right)^t$$

Where St = total working 'survivors' at year t

a = annual real growth in output = 3 per cent per annum

r = discount rate = 10 per cent per annum

and

E_1 = average male yearly manual earnings in year 1.

Workers aged 65 or over were assumed to have no future production to be discounted, so that the estimate of the value of lost output is a conservative one.

4. It was assumed that the wage (i.e. earnings) equals the value of the marginal product, and that the value of lost output can thereby be derived. The assumption was used in all calculations (not just for fatalities) and a note about it is necessary. It may be argued that this assumption is unrealistic as output is not 'lost' when workers are off due to an accident. It is said that (1) firms are accustomed to experiencing absences due to various factors and there is a built-in 'slack' in the labour force, i.e. absentees are

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covered by 'reserves' and (2) workmates 'make up' the otherwise lost output by working harder. With reference to (1) what we are attempting to measure is the real resource cost of accidents for the economy; if the accident rate fell over a period then firms would need to work with less 'slack' and 'reserves' of employees could be cut. Thus workers would be freed for employment and production elsewhere. A gain would be made in terms of real resources. The lost output due to accidents can thus be looked at in two ways: either as output which is not achieved by the injured person or as output which could otherwise have been achieved by the worker who takes his place. As regards (2), this argument is likely to be confined to piece-rate work done within a group—a very small percentage of the working population. We have therefore proceeded on the basis of wage equalling the value of the marginal product.

5. Industrial accidents (excluding diseases) (Part III paragraph 7). Injury benefit statistics exclude mariners at sea, members of the Armed Forces and most non-industrial civil servants. Self-employed persons are not insured for injury benefit, but may receive sickness benefit following an accident. Pneumoconiosis and byssinosis are covered in separate statistics of sickness benefit and industrial disablement benefit. Incapacity for work lasting longer than six months normally results in sickness benefit and industrial disablement benefit replacing injury benefit. Spells of incapacity of less than four days are not necessarily reported to the Department of Health and Social Security. For these reasons, the injury benefit statistics will provide an underestimate of the resource costs of accidents.

6. (i) *Costs of periods off work*

The average weighted weekly earnings for October 1969 were estimated for each industry, males and females separately. A weighting was applied to the average weekly adult earnings shown in the DE Gazette to allow for the percentage of those under age 20 in each industry as shown in DHSS accident statistics; this was done for males and females separately.' The assumption is that those under age 20 appear uniformly in the accident statistics broken down by length of spell.' These earnings were then multiplied by the number of spells and by the length of spell for each sex. The number of spells are not exactly the same as the number of accidents, since more than one spell of incapacity may result from one accident. But for our purpose, the number of spells broken down by length of spell are ideal, since they reflect very accurately total absence from work due to industrial accidents (and the prescribed diseases statistics do as well). The total lost output attributable to incapacity was £84,541,384 (£78,555,615 for men and £5,985,769 for women).

(ii) *Hospital and medical costs*

(a) *In-patient costs*

The number of those who attended hospital as in-patients is not available from the DHSS statistics, nor is the severity of their accidents. The breakdown of spells is done by medical cause, and severity is not easily derived from this causal data. Examination of causes led to a view that from 5 to 10 per cent of the total were probably severely enough affected to be in-patients, and this was confirmed by the HMF1 random sample, where 6 per cent were in-patients. Estimated duration in hospital is not available although median durations of certified incapacity were 16 days (men) and 18 days (women) (1 week = 6 days). The HMF1 duration of 11 days in hospital was used. Average cost per in-patient day for 'acute' hospitals is £7.957 per day." The following figures indicate the outcome for both the 5 and 10 per cent severity figures:

<i>5 per cent</i>	<i>10 per cent</i>
(42,084 spells)	(84,168 spells)
£3,683,486	£7,398,972

(b) Out-patient costs

These figures were estimated only very roughly, for lack of relevant data. If we take those whose spells of incapacity were 25 days or more as an indicator of potential out-patients, and deduct the in-patients (10 per cent figure), the male out-patients are 166,592 or 21 per cent of total male spells of incapacity. The corresponding figures for women are 24,840 or 27 per cent. These numbers multiplied by £6.58 give an indication of £1,259,622 as the very approximate out-patient costs.

7. Damage and administration costs for the employer. The elements of employers' costs which we would wish to allow for here include damage to plant, temporary disruption to production, and administrative costs of investigation, reporting and managerial and supervision costs. Administration costs will tend to be fairly constant, but costs of damage and disruption may vary between zero and hundreds or thousands of pounds. No firm evidence exists for the UK. Two sources⁶ indicate figures of £33 and £100 per accident. We have proceeded on the basis of two values: £30 and £50 per accident.

8. Prescribed diseases (Part III, paragraph 8)

- (i) The industrial injury benefit statistics for prescribed diseases are almost as detailed as those for industrial accidents. But because a detailed age/sex industry breakdown is not published for prescribed diseases, an age-weighting based upon statistics of employees by age, sex and industry was used. A slight underestimate is implied by this procedure, because young people tend to suffer industrial accidents a little more than the figures for employee-distribution by age would imply. A similar tendency to suffer from prescribed diseases may be expected.

*(ii) Medical costs**(a) In-patient costs:*

As in the case of industrial accidents, neither hospitalisation nor severity is indicated by DHSS statistics. Median durations of certified incapacity were 20 days (men) and 25 days (women) (1 week = 6 days). The duration of 12 days (2 weeks) in hospital was used, and average cost per patient of £7-957. For 5 and 10 per cent • severity for a total of 27,240 spells, the results were :

<i>5 per cent</i>	<i>10 per cent</i>
£151,724	£303,448

(b) Out-patient costs :

Those whose spells of incapacity were of 25 days or more were taken as potential out-patients, and the in-patients (10 per cent) were deducted. 9,136 spells at £6.58 per spell came to £60,115.

(c) Slight diseases:

£3 was estimated for general practitioner visits, and any out-patient and first aid assistance. This amount was applied to the remainder of spells (15,380) after accounting for in-patients and out-patients. The total was £46,140.

(d) Ambulance costs:

These were ignored as inapplicable.

9. Incapacity longer than six months (Part III, paragraph 9). Data on these persons is available in statistics of sickness benefit following on injury benefit. For men (€23.11) and women (£11.97) separately, age-weighted average weekly earnings were multiplied by the number of spells times the average spell duration. The resulting loss in output,

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attributable to both industrial accidents and prescribed diseases, was £8,154,231. Because of the contribution requirements, the statistics on which this value is based tend not to fully reflect chronic incapacity. Because of lack of data, drug, nursing and GP costs had to be ignored. Rehabilitation costs also had to be ignored.

10. Non-reportable minor accidents (Part III, paragraph 10). 'Damage only' accidents and minor personal injuries do not find their way into the official statistics. Attempts have been made to estimate their frequency, but they are inevitably subject to error. One approach has been made, using Heinrich's 'triangle' on damage control, thus:

for every	1 accident causing personal injury
there were	29 others causing minor personal injuries
and	300 others causing damage to property.

In the 1969 HMFI annual report it was estimated that the number of injuries requiring first-aid treatment was of the order of 9 to 12 millions each year. HMFI estimate a ratio of 1:30 between reportable accidents and minor accidents. (The NIIP study *2,000 Accidents* estimated a ratio of 1 : 50 but this covered parts of only three factories and cannot be regarded as representative.⁷)

11. Subjective costs (Part III, paragraph 13). As well as resource costs, accidents give rise to personal suffering for injured persons and their families. These costs are relevant as part of the total benefit to society if policies for prevention result in fewer accidents. Subjective costs are an estimate of the intangible value of life and good health free from accident or disease. The intangible value of human life is distinct from the economic value, but some estimate can be made from society's point of view. Doubtless no sum is large enough to compensate a man for the loss of his own life — what transforms the calculations is the fact that the potential, victims are unknown. Intangible costs have been included in the cost calculation because (i) there is a trade-off between accident costs and safety costs; and in society's 'choice' of its position on the curve, all costs (intangible and economic) have to be allowed for; (ii) for society as a whole an individual human life is not priceless, because society is willing that human beings be placed at risk for certain not too clearly specified aims. These considerations have led the Department of the Environment to include subjective costs in their road investment appraisal programmes. The Road Research Laboratory (RRL) has undertaken research into various possible methods of measurement, such as insurance payments, compensation and court awards, and implicit valuations from observed institutional and sociological phenomena. The research produced a rather haphazard set of values and implied that (i) systems of intangible valuations of life are not consistent, and (ii) a set of inconsistent valuations would lead to compounding past irrationalities in future investment appraisal. RRL proceeded to estimate the minimum intangible values by reference to what society would pay to avoid an accident. The death of a person who does not contribute to the economy (e.g. a pensioner or a fully disabled person) would result in a net gain to society of perhaps £5,000; as society implicitly devotes resources of this amount to save these persons, the intangible valuation of life will be about this amount. 1,918 fatalities at £5,000 per fatality = £9.59 million. RRL estimated that a slight injury would amount to about £10 in intangible costs. Serious injuries have a wide spread, and RRL suggested a value of between £70041,000 (we have used a figure of £500). The distinction between slight and serious injuries is not evident from DHSS statistics. Because of the large difference in values between serious and slight injuries, two calculations were made. They followed that of the preceding calculations, where severity was arbitrarily assumed. On the basis of the 5% and 10% severity assumptions, serious spells of injury were 42,084 and 84,168 respectively, or in value terms, £21,042,000 and £42,084,000. The remainder were treated as slight injuries.

B. The estimate using HMFI statistics

12. Fatalities (Part III, paragraph 14). There were several stages involved in estimating the lost output due to fatalities:

- (i) an age analysis was carried out of the fatalities reported,
- (ii) an estimate was made of the working life probabilities of the fatalities i.e. how long they would have contributed to production if they had not been killed in an accident. Working life probabilities were estimated by applying to the 1967-69 Life Tables the factor ratio between the 1955 Working Life Tables and the 1955 Life Tables. Working life was assumed to cease at 65; the fatalities in the HMFI statistics aged between 60 and 65 and above 65 were assumed to have a maximum working life of 3 years with low working life probabilities,
- (iii) having obtained the expected length of working life in the absence of an accident, income which would have been earned over this period was discounted back to present value terms to give a figure for output lost. We used the mandatory 10% discount rate and also allowed for a 3% rate of annual growth in real income—in line with productive potential.

The formula used was of the same form as used for DHSS statistics. The treatment of consumption in the case of fatalities is a matter of definition; if society is defined to exclude the decedent, consumption should be deducted from his output. If, however, society is defined to include the decedent his consumption is part of the social loss contingent on his death and should not be deducted from his output. If we consider that the analysis is designed to show the benefits of accident prevention, then consumption is not deducted. However we have included a figure to show what effect the deduction of consumption might have upon the HMFI estimate. The figure used is obtained using the same methods as the Road Research Laboratory, i.e. total consumer expenditure plus government current expenditure on goods and services divided by total population giving a figure for average consumption per head for 1969 of £665. This is a fairly rough estimate and ideally estimates should be made either on a marginal consumption basis or on some basis which takes into account family consumption. However the figure of £665 per head, discounted into the future, has been included to show the impact of the deduction of consumption upon our estimates. The method of discounting was the same as used for fatalities and gives a figure to deduct of £4,253,070. Taken from £8,277,043 this leaves £4,023,973 as an estimate of lost output from fatalities when consumption is deducted.

13. Industrial Accidents (Part III, paragraph 15)

(1) *Lost output*

- (a) An average weighted wage was estimated by
 1. estimating the age/sex distribution of employees within each industry (using Table 98 of the British Labour Statistics 1969 Year Book)
 2. estimating an average wage for each industry weighted by age and sex using the average earnings of the four manual groups (Table 10 of the 1969 Year Book)
 3. multiplying the average industry wage by the number of accidents in each industry and dividing by the total number of accidents to give an average weighted wage of £20.85.

The assumptions involved due to statistical limitations need spelling out:

- (i) it was assumed that the age/sex distribution in employment was the same as in accidents—this will lead to an under-estimate of the average wage as the age/sex distribution in accidents (which is available for the total number of accidents from a 5% random sample but not for separate industries) is more heavily biased towards men over 18 (i.e. the highest paid group) than is the employment distribution,
- (ii) it was assumed that the skill distribution in accidents was the same as is used in the 'manual' earnings statistics. There are indications that this may lead to an over-estimate. Some idea of the skill breakdown was obtained by an analysis of the 0.5%

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sample of 1968; the classification was necessarily somewhat arbitrary but gave a breakdown of skilled, semi-skilled and unskilled of 23%, 35% and 42% as compared with about 42%, 38% and 20% in the 'manual' earnings figures. It must be emphasised that these figures are arbitrary and subject to wide margins of error; but they give some indication that the unskilled form a higher proportion in accidents than they do in the earnings figures used.

Further analysis is precluded by statistical limitations, and the figure of £20.85 has been used in the calculations—it is probably a fairly conservative estimate.

- (b) Average duration of time off work was estimated using table 9 of the 1969-70 DHSS/HMFI 21% random sample (on under-reporting). Dividing the total number of weeks lost by the total number of 'spells' gave an average duration of 22.7 days (4.537 weeks). However this table analysed duration only up to 26 weeks, and there were a large number of cases in the 25-26 weeks range which were obviously of more than 26 weeks duration. Duration for spells of over 26 weeks was estimated using table 18 of the DHSS Digest (analysing certificates of incapacity) which analyses spells of sickness benefit immediately preceded by injury benefit (which has a limit of 26 weeks). Using this estimate gave an overall average duration of 5.13 weeks, which was used in the calculations.

(2) *Hospital and medical costs*

The basic source was the HMFI random 5% sample of 1969, which analysed the sample into three groups of differing severity and also gave information on in-patient treatment and absences of more and less than 28 days.

(a) *In-patient costs:*

Average cost of £7.957 per in-patient day for 'acute' hospitals was obtained from the Hospital Costing Returns for 1969-70. Average duration of stay was estimated using the 1967 Report on Hospital In-patients (table 18 of which gave average duration of stay for different types of injury), and the 5% sample which analysed the sample into different types of injury. An average duration was estimated, weighted by the number of in-patient cases in each injury type, as being 11.388 days. The only problem was that mean and not median durations had to be used as there was insufficient analysis into injury types by median duration. Thus there may possibly be some over-estimation. The 5% sample gave 6.124% as being in-patients. Total in-patient cost was derived by applying the sample percentage to the 1969 accident total and multiplying by average duration and average cost per in-patient day, giving a figure of £1,789,013.2.

(h) *Out-patient costs:*

There is no evidence as to what percentage of injured persons became out-patients, so an arbitrary assumption was made that all Group I absences i.e. severe injuries (minus those who were in-patients) and Group II absences of more than 28 days absence became out-patients. These were 39.85% of the sample. The exclusion of those who were in-patients reduces the likelihood that this is an over-estimate. Average cost per new out-patient for 'acute' hospitals was given in the Hospital Costing Returns as £6.58. Applying these estimates to the 1969 accident figures gives a total of £845,348.49.

(c) *Injuries resulting in less than 28 days absence—about 53.785% of the sample. There are two main problems:*

1. we want to include first-aid, general practitioner and any out-patient costs but have no real evidence. Obviously the figure chosen has a fairly large impact on the total as it affects a majority of the accidents. Dawson's figure for 'slight' road injuries was £5 in 1963 but this includes some out-patients. If we use an arbitrary figure of £3 per slight injury we arrive at a total of £502,579.38.

2. the total number of injuries requiring first-aid treatment may be of the order of 9 to 12 million, unrecorded in the statistics.

(d) Ambulance costs:

Ambulance costs arise for 21-954% of the sample if we assume that an ambulance was needed for all Group I cases (severe injuries) and all Group II cases who became in-patients. Using the figure of £15 per ambulance (supplied by the Ambulance Adviser to DHSS) gives a figure of £1,061,662.

14. Under-reporting (Part III, paragraph 16). The detailed estimates are

1. lost output

$$£20.85 \times 513 \text{ weeks} \times 119,240 = £12,753,970$$

2. damage and administration costs

$$£30 \times 119,240 = £3,577,200$$

$$£50 \times 119,240 = £5,962,000$$

3. hospital costs

- (i) serious injuries—according to the 5% sample, 18% of Group I injuries require in-patient treatment.

$$\begin{aligned} \text{In-patient costs} &= 1,610 \times £88 \text{ (average cost per in-patient)} \\ &= £141,680 \end{aligned}$$

- (ii) out-patients-40% of sample

$$= 47,696 \times £6.58$$

$$= £313,840$$

- (iii) less severe injuries-58.7% of sample

$$= 69,994 \times £3$$

$$= £209,982$$

- (iv) ambulance costs for 22%

$$= 26,232 \times £15$$

$$= £393,480$$

This gives total hospital costs of £1,058,982.

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³International Social Security Association. *Colloquium on the prevention of occupational risks, No. 2, the economic repercussions of employment accidents*. Geneva 1967.

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SR. M. Jones, *Absenteeism*. Manpower Papers No. 4, Department of Employment, HMSO 1971.

⁵W. G. Stewart, *The economics of safety*. Talk to North East Area Productivity Committee, 1968; and Engineering Employers' Federation, *Management Action Plan Part I*, 1972.

In their study *20(X) accidents* NIIP suggest a ratio of 1:50. In the general factory accident field, a ratio of 1:30 is thought by HMF1 to be more reasonable.

⁶*Industrial accident statistics*. Ministry of Labour Gazette, April 1961.

⁷*Hospital Costing Returns, 1969-1970*, DHSS, HMSO.

⁸Table 147, Annual Report, DHSS 1970. HMSO.

¹¹*The length of working life of males in Great Britain*. Studies in official statistics, No. 4, Ministry of Labour and National Service, HMSO 1959.

¹²*Diast of statistics analysing certificates of incapacity, June 1969 to May 1970*. DHSS (not yet published).

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APPENDIX 10
(see paragraph 420)

ESTIMATED EXPENDITURE BY GOVERNMENT DEPARTMENTS
AND AGENCIES ON OCCUPATIONAL SAFETY AND HEALTH, 1970-71

		£
Ministry of Agriculture, Fisheries and Food and Department of Agriculture and Fisheries for Scotland		744,000
Home Office		207,000
Department of Employment		5,500,000
Department of Trade and Industry	Mines and Quarries	2,350,000
	Nuclear Installations	390,000
Department of the Environment Scottish Development Department Welsh Office	Radioactive Substances	76,000
	Alkali etc. Works	369,000
National Radiological Protection Board (estimated expenditure for first full year of operation)		1,112,000
TOTAL: £10,748,000		

Explanatory notes

1. The main items of expenditure included in the above estimates are:
salaries and expenses of the inspectorates,
salaries of supporting professional, technical and administrative staff,
equipment and common services,
expenditure on research, excluding expenditure to support research by non-government bodies.
2. Expenditure by local authorities on safety and health inspection is not included.

APPENDIX 11
(see paragraph 446)

THE NEW ZEALAND ACCIDENT COMPENSATION BILL

(Text of a press release describing the contents and purpose of the Bill, issued by the New Zealand High commission on 22nd December 1971)

A bill described by the New Zealand Minister of Labour, Mr. Marshall, as a historic measure of far-reaching importance in its social, legal and industrial consequences was introduced in Parliament this week.

Mr. Marshall said the enactment of the Accident Compensation Bill would place New Zealand in the forefront of world action in this field.

The new bill proposed fundamental changes in the law governing the compensation of those who suffer personal injury by accident, and who are either earners or are injured in motor accidents.

It gives effect to the report of the Select Committee on compensation for personal injury by accident, set up last year to study the Woodhouse report.

In the view of the Select Committee, to provide adequate compensation in future, without recourse to taxation, two self-financing schemes should be set up—an earners' scheme and a motor-vehicle scheme.

All injured earners, self-employed as well as employees, would then be entitled, as of right and without proof of negligence, to compensation equivalent to 80 per cent of the loss of earnings they suffered as a result of personal injury by accident. A limit of \$160 a week is provided for.

In addition, earners and, in the case of motor-accidents, non-earners, would receive lump sum payments for non-economic loss such as loss of limbs or bodily functions, and would be covered for their medical and hospital expenses.

The bill puts these and other recommendations of the Select Committee into legislative form.

The bill also provides for an independent accident compensation commission of three members, one of whom must be a barrister and solicitor of seven years practice. The commission members will be appointed for a five-year term.

One of the first tasks of the commission will be to recommend to the Minister of Labour the levies payable under the act by employers—on behalf of their employees—by self-employed persons and by owners of motor vehicles.

Rates of levies, and maximum levels and rates of compensation laid down in the bill, will be reviewed annually by the commission.

Commission

One of the commission's first responsibilities will be the prevention of accidents. It will take an active and co-ordinating role in the promotion of safety.

Wide functions have been given the commission to support organisations concerned with safety and to promote research. It will also work closely with industry, commerce. Government departments, local authorities and other organisations.

The commission will also consider how far safety may be promoted by penalty levies where accident records are worse than average, and by rebates where they are better than average. The incidence of motor accidents in relation to age groups and driving records will be taken into account.

The commission will take practical steps to promote medical and vocational reha-tion of injured persons. It will establish close relations with hospital boards and other organisations concerned with rehabilitation, and with the local authorities.

Its authorised functions are wide, and include the training and retraining of injured persons, financial assistance, the adaption of a home to enable an injured person's discharge from hospital, and publicity and research.

Appendix 11

This section of the commission's work will be headed ^{by,} a medical practitioner 'of eminence and distinction, with the ability to ensure that the best use is made of facilities and that the fullest co-operation is maintained with the professions'.

Compensation

The compensation for accidents provided for in the bill will cover any accident, whether at work or not and whenever or wherever it occurs. Persons in regular employment whether self-employed or employees, will be covered continuously.

For continuous cover, two conditions are laid down:

The earner must have been ordinarily resident in New Zealand for 12 months.

An employee must be in paid employment for at least 10 hours a week, and the earner, whether an employee or self-employed, must be entitled to, or earning \$500 a year.

There is special provision to deal with cases in which the income of a self-employed person falls below the specified figure in a particular year. There are also special provisions to deal with some cases not covered by the above rules.

Special provision is made in the bill for the extension of continuous cover for a limited period, generally ranging from one to eight weeks, after a person ceases work.

This is to deal with cases where people on holiday, or between jobs, suffer an accident before taking up a new job.

There is also provision for the extension of cover beyond New Zealand when a person is temporarily absent on business or is on duty overseas if his earnings continue to be derived from New Zealand and he is subject to the control of his New Zealand principals.

Other special provisions cover New Zealand seamen and airmen, and husbands and wives in a genuine working relationship.

Occupational diseases, including industrial deafness, are provided for by the adaptation of the relevant sections of the Workers' Compensation Act.

Motor Vehicle Scheme

The motor vehicle scheme, under which cover is absolute, will provide accident cover for everyone in respect of personal injury by motor accidents in New Zealand.

Cover is provided if a vehicle in an accident is registered and licensed or is required to be registered and licensed, or comes within a trade licence, or is to be treated as though it were registered and licensed. This latter category covers the vehicles of visitors, towed vehicles, agricultural trailers, and invalid carriages.

Levy

The earners' fund will be financed by levies averaging 1 per cent of incomes payable by employers on behalf of employees, and by self-employed persons.

The bill provides for the new levies to be fixed by Order-in-Council within lower and upper limits of 25 cents and \$5 per \$100 of remuneration.

The motor vehicles fund will be financed initially by levies similar to the compulsory third party premiums now paid by owners of motor vehicles.

Right of appeal

A right of appeal is provided against decisions of the commission and its agents affecting the right to compensation under the legislation, the liability to pay levies, or the granting of rehabilitation assistance or compensation. Hearing officers will be appointed, to whom the commission may refer applications for review of its decisions. Provision is also made for the appointment of a one-man appeal authority, who will be a barrister and solicitor of not less than seven years practice. Provision is also made for a right of appeal on points of law against a decision by the authority to the Administrative

Division of the Supreme Court. There is also a right of appeal on a question of law from the Supreme Court to the Court of Appeal.

The bill would be studied by a Select Committee during the recess, and it was hoped that it will be passed next year Mr. Marshall said.

It will probably take effect from October 1911

APPENDIX 12
(see paragraph 351)

A NOTE ON THE IMPLICATIONS OF ENTRY INTO THE
EUROPEAN ECONOMIC COMMUNITY

1. There are, as between the various member countries of the European Economic Community, considerable variations in law and practice relating to safety and health at work. So far as the broad picture is concerned, this situation is likely to continue. EEC directives made under Articles 100-102 of the Treaty of Rome are designed to remove barriers to trade by harmonising national laws and, once adopted, oblige member states to enact laws to implement their provisions; but they are couched in a form which prescribes the ends to be achieved, leaving methods of ensuring compliance to be determined within the context of each member state's own institutional and legal framework. The detailed implications of UK entry to the Common Market are under examination by the various government departments concerned and we have not, therefore, regarded it as part of our task to make a special study of the subject. We do believe, however, that the new legislative and institutional arrangements for safety and health at work proposed in this report would provide a stronger and more flexible framework for participating effectively in the work of the Community. This note sets out very briefly the general position as we understand it.

2. Articles 100-102 of the Treaty of Rome provide for the removal of technical obstacles to trade through the harmonisation, by means of directives, of regulations, standards and administrative practice. So far only two EEC directives bearing on safety and health at work have been adopted. One made under Article 100 deals with the classification, packaging and labelling of dangerous substances: and one Euratom directive deals with general standards of protection against radiation hazards. Both are undergoing amendment at present. Others in an advanced stage of preparation are concerned with dangerous preparations and mixtures, electrical equipment, pressure vessels and lifting devices. It seems likely that this concentration of effort upon the removal of trade barriers by the harmonisation of technical standards for specific types of equipment and materials will grow in importance.

3. In chapter 11 of this report we have recommended that provisions for safety and health at work—whether in the form of statutory regulations or of approved voluntary standards and codes of practice—should in future impose appropriate obligations upon the manufacturers of equipment and materials. Insofar as existing and draft EEC directives in this field are mainly concerned with matters of design and manufacture, what we have recommended fits in with current EEC preoccupations. More generally, we have recommended that our present body of safety and health Acts and regulations should be replaced by a broad enabling power under which detailed standards could be more readily modified without extensive statutory procedures. This would undoubtedly facilitate the process of harmonising national standards with EEC standards where necessary.

4. Articles 117 and 118 of the Treaty of Rome contain provisions relating to the promotion of improvements in working conditions. So far they appear to have been little used, but it is possible that in the longer term the European Commission will increasingly become a centre of initiative for the promotion of safer working conditions and practices generally. As a member of the Community Britain will, of course, play a full part in the formulation of any relevant provisions. It seems reasonable to think this will be done more effectively if our own legislative and administrative arrangements for safety and health at work are, as we have recommended, co-ordinated under one national Authority. In our view, therefore, entry into the European Economic Community reinforces the case for a single central Authority in this country responsible for matters concerning safety and health at work.

APPENDIX 13

REVIEW OF THE FIELD OF THE INQUIRY

Copy of a memorandum issued by the Committee to assist organisations wishing to submit evidence.

Introduction

The terms of reference of the Committee of Inquiry are:—

'To review the provision made for the safety and health of persons in the course of their employment (other than transport workers while directly engaged on transport operations and who are covered by other provisions) and to consider whether any changes are needed in:

- (1) the scope or nature of the major relevant enactments, or
- (2) the nature and extent of voluntary action concerned with these matters, and to consider whether any further steps are required to safeguard members of the public from hazards, other than general environmental pollution, arising in connection with activities in industrial and commercial premises and construction sites: and to make recommendations.'

The Committee is soliciting factual information, views and suggestions on the matters covered by its terms of reference from a number of government departments, other organisations and individuals having special interests, experience or responsibilities in these matters.

The following memorandum has been drawn up by the Committee in the form of a questionnaire which indicates some of the questions and problems which at this stage appear to the Committee to be relevant to the main themes of the Inquiry. The questionnaire may be of assistance to those wishing to prepare evidence for the Committee. The questionnaire is not exhaustive, nor is it intended to lay down the form in which written evidence should be submitted. Organisations will no doubt address themselves primarily to those matters which lie within their area of concern and responsibility. They should feel free to supply evidence in whatever form they find most convenient and to include whatever material they think relevant, but bearing in mind that the Committee's task is to consider broad issues and major problems rather than the close detail of existing provisions and arrangements for the prevention of accidents and ill-health at work.

Organisations submitting evidence are invited to include a brief description of their main functions, responsibilities and activities within the field covered by the Inquiry, together with any relevant background material.

The Committee would be glad to have written evidence as soon as possible and in any event not later than the end of November 1970. Organisations with a major interest over a large part of the field might find it convenient to submit sections or instalments of their evidence as they are completed. Written evidence (20 copies if they can be supplied without undue inconvenience) should be sent to the Secretary to the Committee, who is available to discuss any queries.

Questions and problems

Within the Inquiry's terms of reference it is possible to identify a number of fundamental and wide-ranging issues which call for examination. For example, what are the underlying causes of failure to prevent accidents and ill-health at work? How far are existing statutory controls and other non-statutory arrangements directed towards the real problems, and how successful are they in terms of accident and ill-health prevention? Do present arrangements put the right responsibilities in the right places? Is the present balance of resources between legislative action and other forms of action the right one? Where should the emphasis be placed in the future? What major legislative, organisa-

Appendix 13

tional or institutional changes may be needed? This memorandum attempts to approach these fundamental issues by way of questions formulated under a number of heads of inquiry.

1. Legislation

Nature and effect. Are any major changes needed in the nature of the existing legislation dealing with safety and health at work? Do existing statutory provisions deal with the right things? Are they too general, too detailed, or too complex? Are there any serious difficulties in ensuring that they are understood by those affected? Are they reasonably easy to amend as circumstances change? In what ways do they help to reduce accidents and ill-health at work? Is it possible to evaluate the impact of particular sets of regulations?

Scope. Is the present coverage of the legislation adequate? Who and what is left out, and why?

Penalties. Are the penalties prescribed for breach of statutory obligations appropriate in character and scale? What other sanctions are available? What is the scope for licensing, with the sanction of withdrawal?

General structure. Are there any practical advantages or disadvantages arising from the fact that existing statutory provisions are spread over a number of different Acts? Is there a case for a single comprehensive enactment or code dealing with safety and health at work?

2. Administration and enforcement

What is the present pattern of responsibilities for administering and enforcing legislation dealing with safety and health at work? Is it the right pattern? What arguments are there for or against the present division of responsibilities between central and local government? What are the advantages or disadvantages of having separate inspectorates at national level? Is the role played by the central departments the right one? Could employers and unions be more closely associated with the task of administration?

Inspectorates. Is the right balance struck between strict enforcement, persuasion and advice? Are inspectorates adequate in quality and quantity for their present tasks? Are these tasks the right ones, i.e. are the inspectorates used in the most effective way? How are inspectors selected and trained? What are their qualifications? What powers do they have and should they have?

3. Voluntary effort and self-help

What contributions to the prevention of accidents and ill-health at work are or can be made by non-statutory bodies, professional organisations, insurance companies, trade unions and employers? How can such contributions be made more effective? Is the form of consultation on the establishment of standards satisfactory? Is it economical? What scope is there for collective arrangements and agreements between employers and workers? How far could this replace legislation?

4. Safety and health at the workplace

How can the interest of employers and workers in safety and health be stimulated and maintained? How should safety and health arrangements be organised within the individual firm or establishment? What are the respective responsibilities of directors, managers, supervisors, trade union representatives, individual workers? How can working practices, payment systems, organisational changes, etc. within the workplace affect safety and health hazards, and attitudes towards them? How should the introduction of new processes be controlled in the interests of safety and health? What specific incentives are there for employers and workers to improve safety performance? What

incentives could be developed? In what ways do the safety and health problems of large and small establishments differ? What are the relationships between safety and health requirements and the requirements of operational efficiency and commercial profitability?

5. Training

What arrangements exist at national, industry and company level for training in occupational safety and health? Should they be improved? How?

6. Design, manufacture, etc.

How effectively is the design, manufacture and sale of plant, equipment and materials, and their import and export, controlled in the interests of safety and health? What more could be done?

7. Overseas experience

What lessons can be learned from significantly different approaches to industrial safety and health in other countries? What international treaties, conventions or codes deal with safety and health at work, and how far does law and practice in this country conform to them?

8. Compensation for injury (Note: This subject is not in itself within the terms of reference of the Committee; but the Committee will need to consider to what extent compensation questions may affect the problems which the Committee is examining.)

What is the nature, scale and basis of compensation for industrial injury and occupational disease (*a*) provided by the State, (*b*) obtainable through civil litigation? What effect does such provision have upon arrangements for the prevention of accidents and ill-health at work, and upon attitudes towards safety and health risks? How are the considerations here affected by insurance against civil liability?

9. Statistics

How and on what bases are existing statistics of industrial accidents and occupational disease compiled? What do they show? How valid are they as measures of safety performance? What use is or could be made of them? How could they be improved?

10. Research

What is the present pattern of research facilities, activities and responsibilities in the field of industrial safety and health? What arrangements are there for co-ordinating the total research effort? What type of research is most needed, and on what problems? What contribution has professional research made to the evaluation of existing provisions for the safety and health of people at work?

11. Public safety

How is the general public protected from hazards arising out of industrial and commercial activities? What statutory requirements directly or indirectly apply? Is the existing pattern of control adequate? What major new hazards to the public have arisen through technological change and industrial development, and how effectively are they controlled?

12. Costs and resources

What estimates have been made of the costs of accidents and ill-health at work? Are the resources allocated to preventing accidents and ill-health at work adequate? Are they allocated in the most effective way?

APPENDIX 14
(see paragraph 7)

BIBLIOGRAPHY

This bibliography lists the main publications consulted by the Committee during the course of the Inquiry. Part A lists official publications in chronological order. Part B lists a number of books and studies. Much use was also made of the annual reports published by government departments and inspectorates. Articles, pamphlets, etc. have not been included.

A. Official publications

- 1876 *Report of The Commissioners appointed to inquire into the Working of the Factory and Workshops Acts.* C 1443
- 1899 *Final Report of the Departmental Committee appointed to inquire into and report upon certain Miscellaneous Dangerous Trades.* C 9509
- 1902 *Report of the Departmental Committee appointed to inquire into the Notification of Industrial Accidents.* Cd 998
- 1911 *Report of the Departmental Committee on Accidents in Places under the Factory and Workshop Acts.* Cd 5535
- 1918 Health of Munition Workers Committee: Final Report: *Industrial Health and Efficiency.* Cd 9065
- 1929 *Report of the Departmental Committee on the Factory Inspectorate.* (Home Office)
- 1938 *Report of the Royal Commission on Safety in Coal Mines.* Cmd 5890
- 1942 *Social Insurance and Allied Services.* (Chairman: Sir William Beveridge). Cmd 6404
- 1949 *Report by a Committee of Enquiry on Health, Welfare and Safety in Non-Industrial Employment, and Hours of Employment of Juveniles.* (Chairman: Sir Ernest Gowers). Cmd 7664
- 1951 *Report of a Committee of Enquiry on Industrial Health Services.* (Chairman: His Honour Judge E. T. Dale). Cmd 8170
- 1956 *Industrial Accident Prevention.* A Report of the Industrial Safety Sub-Committee of the National Joint Advisory Council. (Ministry of Labour)
- 1956 *Staffing and Organisation of the Factory Inspectorate.* Cmd 9879
- 1957 *Report of the Committee of Inquiry into the accident at Windscale No. 1 Pile on 10th October 1957.* Cmnd 302
- 1959 *The Duties, Organisation and Staffing of the Medical Branch of the Factory Inspectorate.* Cmnd 736
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- 1968 *Report of the Committee of Inquiry into certain matters concerning Labour in Building and Civil Engineering*. (Chairman: Professor E. H. Phelps Brown). Cmnd 3714
- 1968 *Works Safety Committees in Practice—Some Case Studies*. (Ministry of Labour)
- 1969 *Personal Injury. A Commentary on the Report of the Royal Commission of Inquiry into Compensation for Personal Injury in New Zealand*. (New Zealand Government Printer)
- 1969 *Royal Commission on Local Government in England 1966-1969*. (Chairman: The Rt. Hon. Lord Redcliffe-Maud). Cmnd 4040
- 1969 *Report of the Committee of Enquiry on Pressure Vessels*. (Chairman: Mr. R. W. Nichols). (Ministry of Technology)
- 1969 *Final Report of the Committee of Inquiry into Trawler Safety*. (Chairman: Admiral Sir Deric Holland-Martin). Cmnd 4114
- 1970 *Report of a Select Committee of the New Zealand House of Representatives on Compensation for Personal Injury in New Zealand*. (Chairman: Mr. G. F. Gair).
- 1970 *Report of the Departmental Committee on the Fire Service*. (Chairman: Sir Ronald Holroyd). Cmnd 4371
- 1970 *Disposal of Solid Toxic Wastes*. The Report of the Technical Committee on the Disposal of Solid Toxic Wastes. (Chairman: Dr. A. Key). (Ministry of Housing and Local Government)
- 1970 *Third Report of the Research Committee on Toxic Chemicals*. (Agricultural Research Council)
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