THE ROLE OF H.M. INSPECTORS OF FACTORIES

WITH PARTICULAR REFERENCE TO THEIR TRAINING

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Summary

The thesis examines the role of the general inspector of factories from its inception in 1833 to the present day with the object of establishing the dimensions of difficulty of the job as they have emerged, in order to explore their implication for the selection and training of future inspectors. It also reviews the strategies used to draw boundaries to the job. Data are drawn from analysis of revelant statutes, official reports, parliamentary proceedings and other historical sources, and from interviews with a stratified sample of serving inspectors.

The research demonstrates the lack of clarity over the inspectors' role and goes on to derive three dimensions on which the size of the job can be measured:

Scope of problems dealt with,
stage of solution in which inspectors have been involved,
level of discretion or functioning.

On all three there has been a continuing expansion which has been considerably accelerated by recent legislation. The characteristics of legislation which have lead to such expansion are identified as:

regulation of new employment and new problems,
specification of solutions rather than standards,
use of qualifying words in specifying standards or solutions.

It is concluded that the corpus of technical and interpersonal knowledge and skills now required of inspectors may be beyond the capacity of an individual to acquire. Exploration of the potential for limitation of the job on the three dimensions reveals scope for hiving off parts of the job to other central or local government employees or to industry. The implications of such action for government intervention and the concept of self regulation are explored.

HEALTH AND SAFETY

FACTORY INSPECTION

GOVERNMENT INTERVENTION

TRAINING

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CHAPTER 1

INTRODUCTION

"And I said to the man that stood at the gate of the year: "Give me a light that I may tread safely into the unknown"." Minnie L. Haskins.

1.1 REASONS FOR THE RESEARCH

In 1972 ten factory inspectors attended the newly set up M.Sc. course in Occupational Safety and Hygiene at the University of Aston in Birmingham.

A year later agreement was reached to set up an experimental postgraduate Diploma in the Department of Safety and Hygiene at Aston to train all new general inspectors of factories. Since that date all factory inspectors recruited into the general inspectorate and some specialist inspectors have attended the 6 month course at Aston, or a supplementary course of similar structure at Imperial College, London.

The setting up of university based courses marked a radical departure in the Inspectorate's policy towards training which had previously been almost entirely internal and characterised by a heavy reliance on field training backed up by short formal courses. The Department was faced with devising a course to suit the needs, primarily of general inspectors, but also of other trainees in

the field of health and safety. This task was made more formidable by the state of flux in the subject produced by the deliberations of the Committee on Safety and Health chaired by Lord Robens which reported in 1972*, and by changes in the policy of inspection, and a subsequent reorganisation of the method of working of the inspectorate under the guidance of the then Chief Inspector, Bryan Harvey (Annual Reports for 1972, 1973*).

I was appointed to the Department of Safety and Hygiene in February 1972 to develop the new M.Sc. in Occupational Safety and Hygiene, and from that experience and a subsequent involvement in the design of the Diploma course for factory inspectors arose this research. The broad question which faced me at the start of the work was:

What sort of person does a general inspector of factories need to be, or to become as a result of his training?

Questions of this sort are the standard departure points for any person involved in the selection or training of people for any job in any organisation. The standard way of answering the questions is to employ one or more of the following methods:

(1) Study a written job specification which sets out the responsibilities and objectives of the job.

(2) Observe and interview the job holders and their superiors about the job and its problems as they see it.

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* See Appendix 5 for references to inspectors' reports and Appendix 6 for Government reports.

(3) Select groups of successful and unsuccessful job holders and study the differences between them.

In the case of routine jobs in industry these methods are comparatively straightforward. For the general inspector of factories they were far more difficult for the following reasons:

(1) The job was a creation of the labour legislation of the country. It was known that the legislation was about to be radically modified as a result of the recommendations of the Committee on Safety and Health at Work (Robens Committee).

(2) The changes which the Robens Committee were envisaging were likely to alter fundamentally the relationship of the factory inspector to the industry which he inspected. The report of the Committee stated (p.7) "This attitude (apathy) will not be cured so long as people are encouraged to think that safety and health at work can be ensured by an ever-increasing army of inspectors. The primary responsibility for doing something about the existing levels of occupational accidents and diseases lies with those who create the risks and those who work with them".

The committee's concept of the inspectorate led them to believe that the leading edge of its activities should, as a matter of explicit policy, be the provision of skilled and impartial advice.

(3) The inspectorate was also anticipating a change in emphasis of its inspection away from the physical aspects and hardware of health and safety towards the more

fundamental problems of why a particular company or organisation had a poor performance.

(4) The role of the inspector was not seen in the same terms by all sides of industry, e.g. much more emphasis was placed upon the enforcement role in the evidence of the TUC to the Robens Committee than in that of the CBI. My informal discussions with serving inspectors indicated that there was a similar divergence of opinion within the ranks of the inspectorate itself.

(5) The job itself was a wide ranging one of a professional level, involving a considerable degree of discretion to the individual about the way he did his work. This complicated the problem of observing the job holders at work.

(6) The documents available within the inspectorate setting out the job of the inspector went some way towards a job specification on which to base training, but there were large questions left unanswered. The problem was in fact a fundamental one as is specified by the Chief Inspector in his report of 1968 where he stated: "there was no precise specification against which a potential recruit might be matched".

(7) The effectiveness of the inspectorate and hence of individual inspectors was something which the inspectorate itself admitted that it was not good at assessing. (Annual Report 1973).

(8) The literature on the role of central government inspectors in general and of factory inspectors in particular was sparse. No detailed study of the factory

inspectorate had been undertaken since 1942 (Djang 1942) and the available studies had largely concentrated on the merits and demerits of the factory legislation rather than on the job of the inspector.

For all of these reasons it was not easy to arrive at a satisfactory definition of the job from which to derive relevant training needs. While practical considerations necessitated that some answer to the question should be given rapidly in order to mount a training course at once, the problem appeared to be one which would reward further research undertaken with a view to the modification of the training at a later date, should that prove necessary. I therefore embarked on this research in the summer of 1974 with the permission of the Chief Inspector.

1.2 SCOPE AND AIMS OF THE STUDY

The research started out as a study of the training needs of newly appointed general inspectors of factories. As such the focus of the study was the newly appointed Class II inspector, and his trained equivalent the Class IB inspector*. It rapidly became apparent that there was no absolute boundary identifiable between these classes of inspector and other classes, either vertically above them in the inspectorate's hierarchy or horizontally displaced by specialism and sphere of inspection. This was more pressingly apparent because of the merger of the disparate inspectorates, from a number of ministries, into the Health and Safety Executive in January 1975; and the entry of a number of previously unregulated industries under the scope of the 1974 Health and Safety at Work Act.

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* See Appendix 9 for a description of the grades within the Inspectorate.

It became clear that the inspectorate and health and safety were in such a state of flux that no study which concentrated only on what inspectors did in the present could hope to produce a set of training needs which would be adequate for the design of a course which was aimed to equip the inspectors of the 1980's and 1990's.

In order to reduce what at first sight was a chaotic mass of trends and possibilities into some coherent pattern, it was necessary to take a historical perspective. In this way I hoped to be able to discern the dimensions along which the inspector's job had changed in the past, and therefore along which it might be expected to continue changing in the future. The dimensions I was interested in were still the ones which were relevant to the training of inspectors, i.e. those which determined the skills, knowledge and personal qualities an inspector had to have or acquire. However the direct derivation of training needs came to be a subject for future study when the objectives and boundaries of the job had been defined by the research reported in this thesis.

Throughout the research there was a constant need to limit the scope of the study in order to keep it within manageable bounds. The arguments which are developed in the thesis led me towards areas of sociology, organisational theory and social history in which there exist established bodies of theory and research evidence, e.g. the reasons behind the battles between the supporters and opponents of factory legislation and other government regulation in the early years of the 19th century, which have been extensively researched by social historians

(see e.g. MacDonagh 1958, Hart 1965).

While exploration and discussion of such areas would have been interesting and would have produced a more rounded picture of the inspectorate and its place within society and the machinery of government as a whole, I have had to eschew such an extension of the study where it was not imperative to the argument I was developing. Thus I have included or excluded subjects on the basis of their influence on the main theme of the thesis, the knowledge and skills required by a general inspector of factories. This has meant that I have at several points taken a descriptive rather than an analytical stance, e.g. I have established that role strain exists and has always existed in the inspector's job without exploring fully the complex of organisational and social factors which lead to that role strain. The importance of such a concept has been in the implications of its presence for the skills required by the inspector.

In summary, the aims of the research were therefore as follows:

(1) To establish the dimensions of task difficulty in the job of an inspector of factories and how these relate to the legislation which he is appointed to administer.

(2) To relate the dimensions to the strategies used to divide the task of administering the legislation into discrete jobs.

(3) To explore the implications of the findings for the sort of person an inspector of factories should be selected and trained to be.

1.3 STRUCTURE OF THE THESIS

The evidence to support the theme of the thesis is drawn from a wide variety of sources. In order not to disrupt the flow of the argument the thesis starts with a detailed description of these sources and the methodology adopted in collecting the data. Detailed results and analyses of these data are largely contained in Appendices to the thesis, as are summarised data on the organisation and development of the Factory Inspectorate. The main body of the thesis is a discussion which draws upon those detailed results.

A framework for the analysis is presented in Chapter 3, which sets out the dimensions which are relevant to the difficulty of the job and hence to the inspector's traning needs. The next two chapters then use those dimensions to look at the way the job has developed since 1833. Chapter 6 looks at what has been said about the necessary qualities and qualifications of inspectors to perform the duties required. This chapter is presented separately for the sake of clarity although much of what it says is closely linked with the discussion in Chapters 4 and 5.

Having arrivedat the conclusion that the inspector's job has become more than any one person can be expected to master the remaining chapters of the thesis consider the strategies for limiting the job within more manageable bounds.

CHAPTER 2

DATA COLLECTION

2.1 INTRODUCTION

The techniques available for establishing what someone does in their job can be divided broadly into two categories:-

(1) Prescriptive - techniques which start by studying and defining what the overall objectives or purpose of the job are, and then derive the detailed job requirements from those objectives (e.g. Annett et al 1971).

(2) Descriptive - techniques which rely on watching the job being done or asking the incumbent, or those he works with or for, what the job consists of. Techniques in this category range from the detailed observation and classification of work study and method study to the interview techniques of job description (e.g. Reeves, Stringfellow and Wilson 1951, Salvendy and Seymour 1973).

The two approaches can be broadly categorised as:-

(1) describing what should be done,

(2) describing what is done.

The picture of a job derived from the two approaches is always somewhat different particularly where the job holder has discretion as to his method of work, and where the job objectives are subject to change. The danger of relying exclusively on prescriptive analyses of jobs is that the analyst can easily overlook the ways in which his ideal model fails to fit the

realities of the world in which the job has to be carried out, realities which the job holder has to use skills and knowledge to accommodate to.

On the other hand the danger of relying wholely on descriptive analyses is that undue weight can be given to traditional ideas of the job, and to the personal objectives of the job holders which may differ from the objectives of the organisation which employs him. Descriptive analysis alone cannot cater for situations where the job is changing, as was the case with the factory inspector's job during this study.

The methods used for this study were therefore designed to provide both prescriptive and descriptive information which could be combined to arrive at a balanced assessment of the job of an inspector.

The description of what people actually do may present a greater or lesser job than the prescription of what they should do. For example the discussions in Chapters 4 and 5 will show that in the early stage of their history inspectors undertook some jobs, such as dissemination of information on guards for machines, and enquiries into the conditions in certain trades, which are outside a strict interpretation of their role derived from statute. Later in their history there is evidence that inspectors did not enforce certain provisions which were in statute, i.e. they restricted their actual work inside their prescribed role.

Since training is an organisation's tool for fitting people to do what that organisation wants done, it is clear that, when a conflict arises between using description and prescription as a basis for deriving training needs, prescription should win out, provided that it is up-to-date. If individual inspectors then choose to do more than is prescribed it is not for the organisation to provide the necessary training*.

2.2 PRESCRIPTIVE METHODS

The main prescription of an inspector's job is the law which he is appointed to administer and which states the overall objectives which he has to achieve. To back up and interpret the law there have been a range of official policy documents, instructions, and reports. These in turn have been backed up by reports of committees of enquiry, by published writings by research scientists and public figures and by debates in parliament. All these sources have in common a concentration on what the job of the inspector should be. The sources are described in detail at the end of this chapter.

All of the available sources were examined to extract:

(1) the overall and specific objectives which they ascribed to inspectors;

(2) the qualities and qualifications which they indicated to be necessary for an inspector;

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* Clearly if an individual attempts to go beyond his prescribed role and performs badly in that attempt because he lacks the skill or knowledge required, it may be of concern to the organisation to apply restrictions or sanctions to him, or even to reassess its estimate of that prescribed role.

(3) the strategies used for dividing up the tasks between different job holders.

The data from the documentary sources was then compared to data derived in the course of interviews with existing incumbents about the same subjects.

A detailed and exhaustive breakdown of objectives into small, discrete, tasks, such as is achieved by task analysis (Annett et al 1971) was beyond the scope of the thesis. It belongs to the stage of detailed design of a training course which is a development from the work reported here. However the method set out by Annett et al (op cit) provided a useful framework which encouraged the logical breakdown of objectives into subtasks to examine the breadth of knowledge and skill which would be required to accomplish those subtasks. Such an analysis was used on the statutes (see Appendix 10 for examples). Chapter 5 is based on such analyses.

2.3 DESCRIPTIVE METHODS

A standard way of collecting information about people's work and their training needs is to go and watch them and to ask them and their superiors questions about their job. As far as a job such an inspector's is concerned the usefulness of observational techniques is very limited.

The variety in the job, both in the type of situation facing the inspector and in the way in which different inspectors tackle the same situation, the limited amount of advance planning possible to the inspector, coupled with the legal difficulties of taking

a non-inspector on some parts of the job made observation an impracticable method to use. However at an early stage in the research I did accompany 4 inspectors (a IA, two IB's and a Class II) on their normal duties for a total of 4 days. These observations and the discussions during the visits were used to explore the scope for collection of data on the inspectors' current problems and modes of work. From these visits and further discussion with senior inspectors and with the inspectorate's own training staff grew the interview schedule discussed below. The visits did not cover a full range of the inspector's activities, since the inspectors admitted that they had been selective in arranging their days, knowing that they would be accompanied by a non-inspector who had no warrant entitling him to enter premises. However, discussions with the inspectors accompanied and inspectors at headquarters and in the districts filled in the missing preliminary information. Having decided that data could only be collected by indirect methods, it remained to narrow down the techniques which were appropriate and practicable.

Questionnaire and diary techniques were rejected partly on the grounds of the difficulty of obtaining sufficient cooperation to get them filled in, and partly because the data obtainable by such methods could not be as rich and deep as data from interview methods. I was also concerned to obtain data about the realities of the job (description) and not the official version of what the job should be (prescription). Interview methods seemed to promise more spontaneous answers which would not be so coloured by the official view of the job.

Having settled upon a face to face interview as the method of data collection it then remained to draw up the form of the interview schedule. Pilot interviews with a training inspector and two IB

inspectors attending courses at Aston University established clearly that a schedule of standard questions, to be used in an invariant order and phrasing would not be feasible, since, once started on answering a question about one aspect of the job it was virtually impossible to prevent the inspectors from straying onto other areas and answering questions which came further down the schedule. This loquacity and willingness, once started, to go on talking about their jobs for considerable periods had been anticipated from discussions prior to setting up the pilot interviews, but I had not fully anticipated its extent and it was necessary to prune the questions drastically in order to constrain the interviews within the 45-60 minutes per person which were acceptable to the inspectorate.

In view of these constraints I decided to adopt a focussed interview approach guided by a check list of main questions and detailed sub-questions which could be used as a prompt list to direct the interview through the areas of interest. This technique sacrificed precision and ease of analysis of the data, but it more than made up for this sacrifice by the gain in spontaneity, rapport and richness of data obtained.

The design of the questions to be asked was influenced by the critical incident study carried out by Teasdale (1972) into the selection of Class II inspectors (see below p.207 for detailed discussion of this study.) The critical incident technique developed by Flanagan (1954) has been used in a number of fields (e.g. Tarrants (1963) on accident prevention, Herzberg et al (1959) on motivation). The technique consists of asking respondents to recall examples of particularly good and particularly bad situations appropriate to the study, and to describe the events

and circumstances surrounding that situation which were critical to it being labelled as good or bad. In applying this sort of technique directly to the establishment of training needs it is the bad pole of the continuum which is most illuminating, the situations which caused problems and difficulties at any stage in the inspector's career. In assessing the character, abilities and attainments which make a good inspector both good and bad poles are appropriate. In line with this method a number of the questions in the schedule were phrased in the form "What is/was particularly difficult/easy, good/bad, about this particular aspect of the job/type of person?".

Data from interviews were backed up by an analysis of the minutes of evidence given by inspectors to committees of enquiry during the history of the inspectorate.

2.3.1 CONTENT OF THE INTERVIEWS

The interview data were intended to help to answer questions in a number of areas of the project. Principally they were aimed at clarifying the way in which the huge mass of possible objectives of the job were in practice reduced to a series of priorities. This entailed examining the ways in which priorities were set in practice, the way in which aspects of the job were left to other groups of people, and the effect this had on the problems and difficulties and hence the training needs of new inspectors.

Subsidiary purposes of the interview were to gain information on the background and experience of the interviewees in order to fill out data available from

records, and to find out the opinions of the interviewees on the training which they themselves had had.

The interview programme was designed to compare the views upon these matters of people at different levels in the inspectorate*, new recruits (Class II), qualified inspectors who were carrying out the bulk of the routine work of the inspectorate (IB) and the inspectors in immediate charge of both districts (IA) and divisions (DSI/SI) who were the managers of the "working inspectors". In this way I hoped to detect any changes in emphasis associated with positions higher up the structure, whether these were for reasons of seniority or of longer experience in the job. Finally since the interviews were undertaken during or soon after two major upheavals in the inspectorate's life, the introduction of the 1974 Health and Safety at Work etc. Act, and the reorganisation of the inspectorate into areas and industry teams, questions were introduced to explore the effect of these changes as seen by the interviewees, and the strategies which had been used to cope with the changes.

2.3.2 INTERVIEW SCHEDULE

The original interview schedules and the modifications to them for the main body of the interviews are shown in Appendix 1. The changes which took place between

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* See Appendix 9 for the classification of inspectorate grades throughout its history.

the two forms were largely for two reasons:

(1) Some peripheral questions were dropped for lack of time.

(2) Some questions received standard answers (usually official answers) and so were providing no new information, and could be dropped.

2.3.3 SAMPLE SELECTION

In order to obtain a representative sample of inspectors I decided to interview approximately a 10% stratified sample of the general inspectorate. Since the numbers of inspectors in the field force at the time of the interviews (November 1975 - December 1976) ranged from approximately 500 to approximately 700 inspectors, this entailed planning for some 65 interviews. The stratification was based on an analysis of the status of inspectors in post in August 1975, obtained from personnel records. Table 1 sets out the projected and actual numbers of interviews.

The SI, DSI, IA and IB interviews were arranged by the training branch of HM Factory Inspectorate (HMFI). The numbers of interviews at each grade were specified to them and the fact that each division in the country should be represented. The choice of interviewees then had to be left to HMFI. From discussions with them after the interviews it would appear that the sample may have been biassed towards those inspectors known to be willing to cooperate in an exercise of this sort, and

TABLE 1

PROJECTED AND ACTUAL INTERVIEWS

WITH GENERAL INSPECTORS

Grade*	Number of General Inspectors in post (Aug. 1975) excluding HQ. staff	Projected interviews (10% sample)	Actual interviews
SI/DSI	30	3	6
1A	122	12	12
1B	186	19	24
11	77	8	25
	415	42	67

The discrepancies between projected and actual interviews were caused by the following:-

1. Increase in SI/DSI interviews in order to be able to make some valid generalisations.

2. Large increase in Class II interviews to cover the dramatic increase in numbers in post from August 1975, and because these people were the ones whose training was being studied, and whose problems were most relevant to the study.

* See Appendix 9 for explanation of the inspectorate's grading system.

that there was a volunteering effect, since in some divisions inspectors were asked to put their names forward as being willing to be interviewed. The effect of this bias on the results cannot be calculated, but it is reasonable to assume that the interviewees would have been likely to hold more definite views about the subject than those not interviewed. It is also possible that the sample could have been biassed towards those favourable to the importance of training since it was the stated purpose of the interviews to examine that subject. This would be likely to result in more considered views being expressed. However, since the majority of interviewees stated at the beginning of my interviews with them that they were unclear as to the exact purpose of the study, the extent of bias introduced from this cause is unlikely to have been great.

I tested the interviewed populations to see if they were representative of the Inspectorate on the basis of sex, age, date of starting and qualification, since these all seemed likely to affect their view of the inspector's role. Table 2 shows that there were no significant differences on these factors ($p = 0.5$).

All of these interviews were conducted at district or divisional offices in the period from November 1975 to May 1976.

The Class II interviewees (bar one who was interviewed in the previous batch) were chosen from the inspectors attending the Diploma in Safety and Hygiene at Aston

TABLE 2

COMPARISON OF INTERVIEW POPULATION WITH

TOTAL GENERAL INSPECTORATE POPULATION

SI/DSI/IA/IB

		Interviewees	August 1975 Total Population (non HQ)
Sex	Male	38	378
	Female	4	37
Date of Birth	1945-55	12	105
	1935-44	15	137
	1925-34	8	94
	1915-24	5	56
	before 1915	2	22
Date of Starting	Unknown	0	1
	1970-75	10	132
	1965-69	13	76
	1960-64	6	83
	1955-59	3	46
	1950-54	4	38
	before 1950	6	38
Qualification	Unknown	0	2
	Science	17	132
	Engineering	12	138
	Social Science	2	69
	Arts	11	64

in January 1976 to January 1977 intakes. 10 were interviewed when they attended the induction day for the course, the remaining 16 were interviewed during the course, the majority of them during the second term of the course. The former group were chosen at random from those attending the induction day and asked to cooperate (none refused). The latter group were volunteers who answered a request to come forward made early in their time at Aston. An analysis of the background, age and sex of the volunteers compared to that of all course members on those courses is shown in Table 3.

Again there is no significant difference ($p = 0.5$) on any variable. It is reasonable to assume that the views expressed were representative of the total population.

2.3.4. CONDUCT OF INTERVIEWS

The majority of interviewees were not clear about the purpose of the interview before my visit to them. The interview was therefore introduced in a standard way making the following points:

(1) Thanking them for attending.

(2) Explaining that the purpose of the interviews was twofold:

   (a) to help the University get the aims of the Diploma course and its teaching right and

   (b) to collect information for a research project of my own into the role and training needs of inspectors.

TABLE 3

COMPARISON OF INTERVIEW POPULATION WITH

TOTAL GENERAL INSPECTORATE INTAKE

CLASS II

		Interviewees	Total Intake Jan.1976-Jan.1977
Sex	Male	23	88
	Female	2	13
Date of Birth	before 1945	3	11
	1945-49	8	43
	1950-54	14	47
Date of Starting	before 6.75	1	2
	6.75 - 12.75	7	30
	1.76 - 6.76	16	67
	after 6.76	1	2
Qualification	Science	8	46
	Engineering	11	39
	Social Science	5	14
	Arts	1	2
Industrial Experience	Yes	13	58
	No	12	43

(3) Explaining that I had permission from the Chief Inspector to carry out the interviews and that the interviewees' views would influence future events, and were therefore important.

(4) Assuring them that the interviews were confidential in that no individuals would be named or identified unless they specifically requested to be.

(5) Asking them to give me their own personal views and opinions in response to my questions, not the official line.

(6) Asking them if they objected to the interview being tape-recorded to allow me to concentrate on what they were saying.

No interviewee refused to be tape-recorded although two indicated that it had inhibited them, and both gave further views once the tape recorder had been switched off at the end of the interview. These additional views were amplifications, rather than contradications or additions to the previous material.

After the interviews the tapes were transcribed and the transcripts checked against the original tape. Parts of five interviews were found to have been lost as a result of malfunctions of the tape recorder. The incomplete interviews were for three IB's and two IA's. In the subsequent analysis the part interviews were used as appropriate, since the major part of the analysis was carried out by pooling all the interview data.

2.3.5 INTERVIEW ANALYSIS

The interviews were content analysed under the following headings:

(1) Objectives of the inspector.

(2) Priorities among activities.

(3) Changes with time,

with the 1974 Health and Safety at Work Act.

with reorganisation.

with policy.

(4) Difficulties encountered.

(5) Activities undertaken and hence knowledge and skill required for routine investigations and additionally for investigations, prosecution/ court work, other activities.

(6) The basis and method of assessment of inspectors by the inspectorate.

(7) The relative roles of specialist and general inspectors.

(8) Gaps seen in specialist back up.

(9) The qualities required of an ideal inspector:

personal qualities,

qualifications,

previous experience.

(10) Comments on training received and needed.

Summaries of the interview data are presented in Appendix 2.

The following sources were used for the research:

(1) Statutes and associated legislation,

(2) Secretary of State's instructions to inspectors,

(3) Internal inspectorate instructions,

(4) Minuted discussions at internal conferences,

(5) Reports of inspectors and chief inspectors,

(6) Minutes of evidence and reports of official enquiries,

(7) Published writings on factory inspection,

(8) Parliamentary proceedings.

Their availability and value as sources of evidence is discussed below.

2.4.1 STATUTES AND ASSOCIATED LEGISLATION

Since the beginning of the 19th Century there have been some 75 Acts of Parliament which have been relevant to the job of the inspector and of which he has administered all or part. A full list of the Acts, their reference, dates of passage and repeal and their short title where applicable is contained in Appendix 3. Appendix 4 contains a list of the relevant regulations made under the Acts in force at the time of my research (1976).

In the body of the thesis the Acts are normally referred to by their date alone, after the initial mention, in order to simplify the text.

The Acts and regulations were analysed in detail to discover how the objectives set had changed over time.

2.4.2 SECRETARY OF STATE'S INSTRUCTIONS TO INSPECTORS

Prior to 1878 the Secretary of State conveyed his instructions to inspectors in occasional letters, preserved in the papers of the Home Office, and sometimes published in the inspectors reports or in parliamentary papers. The letters were usually on specific issues of concern at the time, about which there had been some question in parliament or debate in the press.

After the codifying Act of 1878 the instructions were formalised. They were referred to in Section 67 of the Act as follows:

"The Secretary of State --- may appoint such inspectors ---, clerks and servants as he may think necessary for the execution of this Act and may assign to them their duties --- and may regulate the cases and manners in which the inspectors, or any of them, are to execute and perform the powers and duties of inspectors under this Act ---".

From that date onwards the instructions were periodically revised. They set out the objectives and spheres of influence of the various grades and branches of inspectors. I have used them as prescriptive documents to indicate the official purpose of the inspectorate as seen by the Government.

2.4.3 INTERNAL INSTRUCTIONS

From the earliest days of the inspectorate the inspectors and later the chief inspector have issued instructions to their subordinates on the way in which they should carry out their job. The early instructions are preserved as letters from the inspectors to their superintendents, sometimes republished in their quarterly and half yearly reports. From 1877, with the advent of a chief inspector and a centralised office, the circulars are preserved in a series. They were issued at first occasionally as events demanded. From January 1893 they were in a numbered irregular series and from 1901 they appeared as a monthly information and instruction bulletin. This ceased in April 1957, to be replaced by circulars on single topics to be included into a continually updated set of instructions, the Factory Inspectorate Codes.

The complete set of instructions from 1877 to 1957 are to be found in the library of the Health and Safety Executive. I was given access to a selection of later codes relevant to training by permission of the inspectorate.

The instructions ranged across the whole gamut of the inspectors' job from moral conduct to travelling expenses, from decided cases to new staff, from technical inventions to interpretation of the law.

Analysis of them indicated the topics which were of concern to the inspectorate at different periods.

I have used them mainly to trace the concern with training and selection and as a prime example of a strategy to define the content and boundaries of the inspectors' job by providing him with standardised information to use in deciding standards and advising on solutions to hazards.

2.4.4 MINUTED DISCUSSIONS AT INTERNAL CONFERENCES

By Section 45 of the 1833 Act the four inspectors were ordered to confer at twice yearly intervals in order to agree upon standard solutions to the problems which faced them. These conferences of inspectors continued from then until 1878 when Robert Baker retired, leaving Alexander Redgrave as the sole inspector, and henceforward chief inspector.

The principle of conferences had already been extended to the Superintending inspectors who were appointed from 1868 onwards. They met at intervals varying from 3 to 6 months from then on. The minutes of these meetings from 1910 to 1957 were available to me in the H.S.E. library. After that date the minutes were not publicly available.

The practice also grew up of holding regular conferences at the lower levels of the inspectorate where problems could be aired and instructions discussed. The divisional conference started in 1922 (Minutes of S.I. Conferences), attended by all inspectors in each division, was the most formal manifestation of this, but, as in any large organisation, less formal meetings of the superintending inspector with his district inspectors and of the district inspector with his staff supplemented the divisional conference as a way of passing

instructions down to the field inspector and passing back comments and problems to headquarters. The minutes of these meetings were not available to me.

I used the minutes of conferences which were available mainly as a source of data on the inspectorate's policy towards training of new inspectors, but also as an insight into the problems of the inspectors, to back up data from the instructions (3 above).

2.4.5 REPORTS OF THE INSPECTORATE

By Section 45 of the 1833 Act the four inspectors were instructed to report their activities to the Secretary of State. These reports, at first quarterly, then half yearly and finally annually in the form of the Annual Reports of the Chief Inspector, continued in unbroken line from then onwards. They contain descriptions of what the inspectors and their superintendents (later sub-inspectors and then inspectors) had done. They sometimes specifically state what the objectives of the inspectors were or were supposed to be. More often they simply state what problems they were tackling and what they actually did.

As documents they suffered a marked change of tone. The early reports contain many controversial suggestions for reformed or new laws. Over the years until 1878 they gradually lost their controversial nature and became catelogues of information about the condition of industry and later still of methods of guarding and accident prevention. Over the course of the 20th Century their tone

became drier and their format more compressed until they represented technical and statistical documents of the state of health and safety and of the inspectorate's involvement in it, sprinkled with exhortation to industry to do better in its efforts.

Renton (1975) discussed the limitations of the reports from 1878 onwards as research documents for tracing the development of the inspectorate's thinking about particular problems in health and safety. He concluded that they were likely to be somewhat biassed towards an optimistic view of the success of the inspectorate and the importance of its role, since they increasingly became public relations documents.

I have used the reports as sources for two types of information, descriptions and prescriptions of the role, training and qualities of the inspector, and descriptions of the activities and organisation of the inspectorate. They are referenced in the body of the thesis as Annual Report, followed by the year for reports after 1878, and by the inspector's name and the quarter or half year for those prior to 1878. Appendix 5 contains the full details of the references.

2.4.6 REPORTS AND MINUTES OF EVIDENCE OF OFFICIAL ENQUIRIES

The history of the inspection of factories is punctuated by the enquiries of Committees, Commissions and Working Parties. The main ones reported in 1833, 1840, 1876, 1911, 1930, 1956 and 1972. (See Appendix 6 for full references). Many published the oral and written evidence

submitted to them. This information was a source of three sorts of insight into the work of an inspector:

(a) Descriptions by inspectors and others of what they were doing.

(b) Statements by witnesses, inspectors, employers and trade union officials on what inspectors should do.

(c) Official pronouncements by the enquiry on what the work of inspectors should be.

2.4.7 PUBLISHED WRITINGS ON FACTORY INSPECTION

These fall into two categories:

(a) The biographies or autobiographies of inspectors (e.g. Lyell 1890, Squire 1927) which described what inspection was like. These were largely of background and anecdotal interest, and I have not analysed them systematically.

(b) Articles and monographs in journals and books, which mix description of inspection with analysis and comment on what inspection should do and be. Important in this category were the publications on inspection for and by the International Labour Office which from its inception regarded factory inspection as an important subject for international harmonisation and promotion. To that end it published a series of conventions, articles and guides. The articles commissioned by ILO were largely descriptive (e.g. Blelloch 1938). British factory inspection was regarded widely as a model for other countries to copy, and descriptions of it were therefore sought after. The conventions and

guides were prescriptive, and I have used them as such.

Several of the publications in this category were concerned more with the merits and demerits of the labour laws and the history of their development than with the job and problems of the inspectorate per se (e.g. Thomas 1948, Hutchins & Harrison 1911, Williams 1960). The books do, however, provide much valuable information about the intended objectives of the inspectorate and its actual development and mode of operation.

There are few publications specifically describing and analysing the inspectorate and its job. Mess (1926) provided a valuable and critical insight into the inspectorate in its first century of existence. Andrews (1937) in a brief report for the United Status Department of Labour was scathing about the legislation in England but full of praise for what the inspectors achieved with it. Djang (1942) provided a detailed description of the history and methods of working of the inspectorate, but the tone of his book was somewhat adulatory and he did not analyse or criticise the inspector's role in any depth.

Other works provided brief insights into the role of inspection (e.g. Hartley 1972), but a major work on inspection (Harris 1955) specifically excluded factory inspection. The dearth of material on the topic of factory inspection was very noticeable.

I have used the works as sources of both descriptive and prescriptive material. They are referenced in the bibliography section at the end of the thesis.

2.4.8 PARLIAMENTARY PROCEEDINGS

Factory legislation has been a contentious issue in parliament from the beginning of the 19th Century. It has occupied many hundreds of hours of debating time and prompted many thousands of parliamentary questions. These debates, questions and replies provided a rich source of evidence about what M.P.'s (to whom the inspectors were ultimately, if somewhat remotely responsible) and the ministers responsible for the factory inspectorate have thought that the inspectors' job is and should be.

The main debates which refer to the work of the inspectorate directly are listed in Appendix 7 with their Hansard references. I have used these debates to provide information on the parliamentary pressures influencing the selection, training objectives and organisation of the inspectorate. In addition I have analysed the content of all parliamentary questions from 1800 which have referred directly to the inspectorate. The questions to which I have referred in the text are referenced in Appendix 8.

2.4.9 OTHER SOURCES

The sources used for this thesis are a majority of those which refer to the work of the inspectorate. I am aware that I have not tapped every available source, notably

the records of the Public Records Office which may contain the early internal papers relating to the inspectorate which I have not found in the Health and Safety Executive's Library. The records I have used have however provided me with a detailed picture of the inspectorate which leaves few questions relevant to this thesis unanswered. I therefore judged it unnecessary to extract the Public Record Office documents.

The more recent (1960's and 1970's) internal documents of the inspectorate were also not available to me for reasons of confidentiality. Data on this period was however available from my interviews, and this deficiency also is therefore not serious.

2.5 REVIEW OF DATA COLLECTION

From the sources discussed above I was able to draw a picture of the job of the inspector from the following viewpoints:

(1) The job as officially prescribed by statute and instructions.

(2) The job as interpreted by various levels of the inspectorate's hierarchy, both in detail and in objectives and priorities.

(3) The job as interpreted by parliament and by both sides of industry.

(4) The job as actually carried out by general inspectors of factories.

The following chapter discusses the problems of analysis of the data collected, to allow for meaningful conclusions to be drawn about the role of factory inspectors.

CHAPTER 3

THE ROLE OF CENTRAL GOVERNMENT IN HEALTH AND SAFETY*

A FRAMEWORK FOR ANALYSIS

"How could the essential character of the capitalist method of production be better shown than by the need for forcing upon it by acts of parliament the simplest appliances for maintaining cleanliness and health?"
(K. Marx. Capital Vol. I p. 611)

3.1 OBJECTIVES OF THE FACTORY INSPECTORATE

The reasons for the first involvement of central government in the regulation of labour conditions in factories have been discussed at length in several texts (see Djang 1942, Thomas 1948, Hutchins and Harrison 1911). The reasons for the passage of regulatory Acts from 1802 onwards do not concern this thesis directly. The debate which led up to the appointment of the first central government inspectors by the Act of 1833 is however important.

The Health and Morals of Apprentices Act of 1802 provided in S. 9 that:

"the Justices of the Peace --- shall at the mid-summer sessions of the Peace --- appoint two persons not interested in, or in any

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* Throughout this thesis, for reasons of brevity, I shall use the phrase "Health & Safety" to cover all areas of the sphere of interest of factory inspectors which have included hours of work, wages, education, welfare, enforcement of blackout etc. at different times in the history of labour regulation.

way connected with, any such Mills or Factories, to be visitors of such Mills and Factories; one of whom shall be a Justice of the Peace --- and the other shall be a Clergyman ---".

This system of local unpaid overseeing of an Act of parliament was within the traditions of legislation on social matters (e.g. Poor Law). This enforcement provision was backed up by encouragement for informers to report breaches in return for a share in the fine.

The system of local inspection was universally considered to have failed after the first few years of operation of the act (Minutes of Select Committee of 1816). Sir Robert Peel, who had played a leading part in passing the 1802 Act, proposed a partial improvement in 1815 (Hansard v.31. col. 624-7) by suggesting that the visitors should be paid for their work, but he remained wedded to the concept of local inspectors.

No change was made in the system until after the report of the 1833 Factory Commission. The commission had received copious evidence of the failure of local inspection and of the need for some person outside the factory system to look after the interests of the factory children. The Commission reported:

"The greater necessity of the appointment of some special agency for the enforcement of the measures we have recommended must be admitted, when it is recollected that they relate solely to the children and are not directly conducive to the immediate interests either of the master manufacturers, or of the operatives, or of any powerful class, and are not therefore likely to receive continuous voluntary support".

The commission had been urged to recommend local inspection, particularly by groups of employers who were keen to see regulations imposed to bring the bad factories in line with their own well regulated ones (Hutchins and Harrison 1911). However, the commissioners rejected this proposal on the grounds of cost and in its place put forward the idea of three itinerant inspectors employed by central government and backed up by local magistrates. The introduction of the concept of central government inspection is ascribed by Hutchins (1909) to Edwin Chadwick, one of the central commissioners, a Benthamite, and a strong advocate of centralised administration. The purpose of the itinerant inspectors as set out by the Commission's report was:

"to go circuits of the chief manufacturing districts, at intervals as short as may be practicable and exercise the functions with which they may be invested for carrying the law into force".

The recommendations of the Commission were followed closely in this respect, and the Act of 1833 contained the following provision as S.17:

"it shall be lawful for His Majesty by warrant under his sign manual to appoint during His Majesty's pleasure four persons to be inspectors of factories and places where the labour of children and young persons under 18 years of age is employed --- which said several inspectors shall carry into effect the powers, authorities and provisions of the present Act".

In the principal Factory Acts which superceded the 1833 Act the wording of the sections appointing inspectors of factories changed little, e.g. S.67 of the 1878 Act stated:

"A Secretary of State from time to time --- may appoint such inspectors --- and such clerks and servants as he may think necessary for the execution of this Act, and may assign to them their duties --- and may regulate the cases and manner in which the inspectors, or any of them, are to execute and perform the powers and duties of inspectors under this Act ---".

The Acts of 1901, 1937 and 1961 all retained the phrase "for the execution of the Act" to describe the objectives of the inspector while the Health and Safety at Work etc. Act 1974 returned to the phrase "carrying into effect the relevant statutory provisions".

Here we seem to have, clearly stated, the job of the inspector, namely to execute or carry into effect the legislation under which he is appointed.

It rapidly becomes clear however that this seemingly straight forward definition, which suggests that a detailed job description can be derived from no more than a careful analysis of statutes and regulations, is not as unequivocal as at first sight.
The following series of quotations illustrates the different interpretations placed on the job by a range of people internal and external to the inspectorate*. At this stage no attempt is made to be exhaustive in compiling the list. The aim is to establish the point that there has been considerable variation in interpretation of the job, and hence that analysis of statutes

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*"In the multitude of counsellors there is safety"
(Proverbs 9.14)

alone will not answer the research question. The quotations are arranged in chronological order of the periods to which they refer.

"We recommend the appointment by the Government of three inspectors to --- exercise the functions with which they may be invested for carrying the law into force" (Report of Factory Commission 1833).

"The inspectors, by policy and inclination, treated the factory owners with great politeness and cicumspection. It availed them little, and enforcement soon became a war of wits between the inspectors and the mill owners". (Historical Association 1971 speaking of the first inspectors).

"it has been my endeavour since I have had anything to do with the factory administration that we should simply be the advisers of all classes, that we should explain the law, and that we should do everything we possibly could to induce them to observe the law, and that a prosecution should be the very last thing that we should take up". (Evidence of Alexander Redgrave to the 1876 Commission on Factory and Workshop Acts).

"when these Acts were conceived, they were regarded --- not as measures for the improvement of the industries to which they applied - as they have since very largely proved to be - but merely as acts of police, designed to prevent particular offences of oppression by employers against helpless individuals of such defenceless classes as women and children". (Report of Machinery of Government Committee 1917).

"The main functions of the Inspector today are instruction (on matters within the law) and advice (on matters outside the law), rather than compulsion". (Annual Report for 1932).

"The Factory Inspector is far more than the policeman of industry. He is rather the agent of the State who explains and interprets the will of Parliament, as embodied in legislation and statutory rules and orders, to the management; a guide, philosopher and friend who assists them in overcoming problems with advice based on a wide experience and long technical training; a humane public official who achieves most by winning the confidence of the employees and the goodwill of the employers". (W.A. Robson in an introduction to Djang. 1942).

"Through the assiduous pursuit of changeable and changing standards, the inspectors were as much concerned with controlling and inducing orderly change as with the prevention of deviation and the maintenance of an industrial status quo". (Carson 1970).

"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. --- On the other hand, some submissions urged us to recommend that inspectors should pursue a policy of rigid enforcement, utilising the sections of the law widely and to the full. (Report of Committee, Safety and Health at Work 1972).

"Clearly no inspectorate however big could hope to police the whole of British industry --- the role of the inspectorate must be to ensure as far as possible that industry is aware of the

problems which need to be solved, that it has the will to solve them, and above all, it has an organisation to translate that will into effective action. --- the role of the Inspectorate should be that of a watchdog". (Annual Report for 1973).

From an analysis of these passages the following key words emerge as interpretations of the statutory "execute" or "carry into effect".

(1) Enforce/Prosecute
(2) Prevent deviation
(3) War of wits
(4) Induce
(5) Control and induce change
(6) Ensure the will andorganisation
(7) Watchdog
(8) Improve standards
(9) Interpret
(10) Explain/Instruct
(11) Win confidence and goodwill
(12) Advise
(13) Assist in overcoming problems

This list provides a range of jobs from the policeman, through the general practitioner to the teacher, the guru and the consultant. Results from my interviews with serving inspectors indicated that a similar range of interpretations existed inside the inspectorate. In response to a question asking what they saw to be the objectives of the IB inspector the interviewees gave the responses in Table 4. The objectives match in spread those drawn from the previous quotations.

TABLE 4

OBJECTIVES OF THE IB INSPECTOR

FROM INTERVIEW RESULTS N = 67

Enforce the law	28
Advise on standards/compliance	5
Identify lack of compliance	1
Diagnose problems	7
Assess management	4
Improve standards	21
Educate management	4
Influence management	1
Sell safety	4
Advise on solutions	14
Assist industry to solve problems	4
Change the organisation	2
Change attitudes	1

Several inspectors gave more than one objective (hence numbers do not correspond to the total sample size), the commonest pairs of objectives being enforcement/advice (15) and enforcement/improve standards (5).

Harris (1955), in his study of central government inspectorates which dealt with local government*, considered that a large measure of discretion on the part of the inspector as to his function was an important ingredient in an inspectorate's success. He was careful, however, to qualify that by saying that its purpose should be clear to all concerned. The evidence from the quotations and from my interviews is that such clarity does not exist in respect of the factory inspectorate.

3.2 CLASSIFICATION OF INSPECTION

Hartley (1972) attempted to classify the inspectorates in central government on a number of dimensions, as follows:

(1) Inspection (or detection of inadequacy) v advice

(2) Substantive v formal (or lacking in authority or sanctions)

(3) Inspection for legal compliance v efficiency v judicial arbitration between parties.

(4) Independent from ministerial restriction v agency for a ministry

(5) Internal v external to the organisation inspected

Hartley classified the factory inspectorate as having substantive advice and formal inspection functions concerned with efficiency** and as being independent and external.

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* He specifically excluded factory inspection, mines inspection and other inspection dealing directly with private individuals or organisations from his study.

** This seems to be a misprint in his table (Table 3 p.458) since earlier (p.454) he uses it as an example of an inspectorate concerned with legality.

As it stands this classification is not appropriate for this thesis. The last two dimensions are concerned with the context of the job, not its content. Context may determine what the boundaries of a job are, but it does not describe the dimensions on which those boundaries are fixed. Hartley's third dimension also provides no help for my analysis of how the job has changed in difficulty. Having classified the factory inspectorate as concerned with legality the dimension offers no further insight, since I have seen no suggestions that the factory inspectors should become primarily concerned with industrial efficiency*.

Within Hartley's first two dimensions there are two concepts which provided a basis for analysis: the distinction between concern with inadequacy of standards and concern with solutions and the distinction between detection/enforcement and advice. From his second dimension particularly comes the concept of discretion allowed in taking action as a result of inspection. In order to clarify these concepts it is necessary to consider the role of parties other than the inspectorate in health and safety.

3.2.1 STAGE OF SOLUTION

The inspector is only one actor in the overall task of securing the health, safety and welfare of persons at work, as is made quite clear in the 1972 Robens Committee report.

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* It is interesting to note that one of the reasons for transferring the Personnel Management branch of the inspectorate to another section of the Ministry of Labour was the fact that the branch's activities did not fit the concern with legality, but verged on that with efficiency.

"This attitude (apathy) 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". (p.7).

In order to place the inspectors' role within the context of the total "problem" of health and safety and to discover the limits that role did or could have, it was necessary to draw up a model of what that total problem was and the functions necessary to solve it.

By "problem" I am here meaning the removal of conditions and situations considered to be undesirable* for reasons of their danger to health, safety or any other objective defined as relevant.

Problem solution in any sphere of activity has certain common characteristics (see e.g. Scott 1967): recognition of the existence of a problem, search for and formulation of objectives, selection from alternative solutions and evaluation of outcomes. If this list is sub-divided somewhat and defined more closely, it provides a suitable framework for the analysis of health and safety problems

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* The question of who considers them undesirable is only relevant to this thesis in so far as it is the inspector who is expected to make the decisions.

as follows:

(a) Detection of a problem or hazard

(b) Establishment of its causes

(c) Specification of an acceptable standard or objective to be met

(d) Assignment of priority to the achievement of that standard

(e) Generation of a technical solution to the achievement of that standard

(f) Generation of an organisational system for implementing the solution

(g) Allocation of resources for implementation

(h) Implementation

(i) Evaluation of the solution against the specified standards.

(A) DETECTION OF HAZARD AND EVALUATION OF SOLUTION

Evaluation or monitoring of the solution merges into problem detection, since the failure to achieve the objectives set presents a new problem to the system. For the purposes of analysis on this dimension the involvement of inspectors in detecting problems de novo, (i.e. previously unregulated diseases, danger or lack of well being) and in detecting failure to meet established standards (as specified in step (c)) are considered together.

(B) ESTABLISHMENT OF CAUSES

This stage involves the establishment of the factors leading up to either the problem or the failure to meet the standard specified.

(C) SPECIFICATION OF STANDARD

What is meant here is the specification of objectives or ends to be achieved, e.g. lack of symptoms of injury or disease, absolute lack of presence of an exposed injury hazard or presence of no more than a specified concentration of a dangerous substance either in the atmosphere or in the body. Specification of ends must be clearly distinguished from specification of means, e.g. provision of a particular design of ventilation system or of machinery guard, or employment of a person of specified competency to perform a designated task. Where means are specified we are concerned with specification of solutions (E and F below).

(D) ASSIGNMENT OF PRIORITY TO THE ACHIEVEMENT OF SOLUTIONS

Data relevant to judging the involvement of inspectors in this step will be whether all problems have been considered of equal importance by the inspectorate, or whether they have taken it upon themselves to decide which one to press for the solution of first.

(E & F) GENERATION OF TECHNICAL AND ORGANISATIONAL SOLUTION

I have separated the process of solution into two stages of technical and organisational solution because, firstly, one of the major shortcomings in health and safety has been the failure to consider

both aspects before arriving at a decision on a satisfactory total solution (see Hale and Perusse 1977 for further discussion), and because, secondly there have been marked differences in the inspectorate's involvement in the two aspects throughout its history (see Chapter 5 below).

Technical solutions (E) include the provision of guards, ventilation systems, protective equipment etc. which remove hazards or problems or place barriers between them and the potential victims.
Organisational solutions (F) include systems of testing, supervision, training, management control etc. which are designed to make the technical solutions work.

(G) ALLOCATION OF RESOURCES

This involves the decision to implement the chosen solution and to provide the resources of money, manpower, time and motivation to making it work. The function of the inspectorate as a motivating force on management is therefore relevant to this stage.

(H) IMPLEMENTATION OF THE SOLUTION

Inspectors will only be considered to be involved in this stage, if they are one of the resources used to implement the solution e.g. by themselves training managers or operators.

3.2.2 LEVEL OF FUNCTIONING OR DISCRETION

As it stands an advice v detection/enforcement dimension does not provide a penetrating enough analysis of the implications for the difficulty of the job or for the level of knowledge and skill, and hence training, required by the inspector. This deficiency can be rectified by making use of the concept of a hierarchy of levels of learning and functioning at which people come to operate (Gagné 1965).

Gagné identified 8 levels of learning ranging from the simple to the complex as follows:

Classical conditioning

Operant conditioning

Chaining

Verbal association

Concept learning

Discrimination

Rule learning

Problem solving

The first 4 levels involve the linking of individually learned stimuli to specific responses and their further linking into specific sequences of behaviour. In the context of the job of an inspector the recognition of a particular machine without a guard as a contravention of statute requires learning at this level (Stimulus = machine without guard, Response = Verbal statement that machine is in breach).

When the concept learning and discrimination levels are reached the learner has acquired categories or classifications of objects or ideas with defined boundaries into which he can put previously unencountered stimuli. These concepts may be concrete (e.g. lathe, power press) or abstract (e.g. dangerous, illegal). At these levels of learning and functioning the person is no longer bound by previous experience of any particular stimuli. He can respond intelligently to objects and situations he has never met before.

Rule learning is the linking together of concepts in meaningful relationships, e.g. "all machines whose parts form trapping points accessible to the operator are to be considered dangerous". Thus abstract concepts are often learned by the generation of rules. Rule learning is only able to cope with situation involving concepts in combinations which have been met with before. The final level of learning, problem solving, is reached when the situation facing the person has never been met with before and he does not have appropriate rules or concepts available to deal with the situation. In this case the person has to generate new rules.

Gagné's main thesis was that performance and learning at a high level, e.g. problem solving, could only take place if a person had adequately learned to perform at the lower levels appropriate to that particular problem; e.g. a person required to determine the flash point of a new solvent could only do so if he possessed the necessary concepts, e.g. flash point, vapour etc. and the necessary

rules e.g. the standand methods for flash point estimation etc.

These levels of functioning are relevant to the difficulty of the job of an inspector, particularly to the discretion that the inspector has over the generation of standards and solutions. If the standards and solutions are defined by someone else (e.g. by statute or by a code drawn up by a professional body) and they are unequivocal then the inspector has no discretion and can operate at a stimulus response level, having learned the clearly defined concepts and rules which define the standards, etc. Still at a rule learning level of learning he may disseminate information about the rules, standards and solutions to people who do not know them. This amounts to a detection and enforcement role, coupled with an educative role. To perform it the inspector needs only a superficial knowledge of subjects about which rules have been made, with the primary purpose of recognition of cases of non compliance.

As soon as the inspector has discretion about the exact meaning of the standards and solutions he is required to deal with, he is required to problem solve as a continuing part of his job. This will require a great deal more understanding of the ways in which the standards and solutions are arrived at, in order that discretion can be used appropriately.

The implications of this dimension for the various stages of solution are discussed below.

(A) DETECTION OF PROBLEM

The detection of a totally new hazard is a problem solving activity, e.g. the first detection of lead poisoning.

Once a hazard has been first detected, its subsequent detection may be reduced to rule learning, e.g. "if lead compounds of a certain formula are used in certain circumstances lead poisoning will result". If there is any element of uncertainty left in the rule, e.g. if "will result" is changed to "may result", then the situation reverts to one of problem solving.

In certain cases hazard detection can be reduced effectively to a concept learning level and even to a stimulus response, or conditioning (verbal association) level. This is so where certain machines or parts of machines, e.g. exposed cog wheels, are invariably dangerous and hence a person can equate in his mind the category "exposed cog wheel" directly with the concept "dangerous", or "illegal", i.e. there is absolute liability to remove a danger.

Another implication of Gagné's hierarchy is that certain hazards are easier to learn about than others. Directly sensible dangers like inrunning nips,

trapping points etc. are concrete concepts and therefore simpler to deal with than intangible hazards such as electricity or radiation, transient hazards such as occasional non-use of guards, or over-working of employees, and contingent hazards such as failure of lifting tackle which all require the learning of rules which define when danger is present*. Those rules may be laid down by statute, rules or other standards or they may be at the discretion of the inspector, in which case the detection of the hazard becomes a problem solving exercise on the inspector's part.

(B) ESTABLISHMENT OF CAUSE

As for (A) the establishment of the cause of any generic or specific problem for the first time is a problem solving exercise. Thus both epidemiological research and accident investigation are problem solving activities. Some statutory provisions etc. limit the extent of problem solving by reducing it to rule following, e.g. provisions stating that occupiers or employers have an absolute liability for the existence of certain hazards. In contrast the requirement to prove intent or foreseeability requires problem solving.

(C) SPECIFICATION OF STANDARDS

As has been mentioned in (A) the specification of a measurable standard is one way of reducing hazard

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* See Hale & Perusse 1978 for a discussion of hazard detection as hypothesis testing.

detection from a problem solving to a rule learning level. If the specification of the standard is left to the inspector he is involved in problem solving. Any standard qualified by words such as "acceptable", "adequate", etc. and any standard which allows unspecified exceptions will therefore involve problem solving, as will any standard where the dimension, but not a measurable level on that dimension is specified, e.g. "clean" "of sound construction" etc.

(D) ASSIGNMENT OF PRIORITIES

The inspectors' action following detection of hazards comes under this category. A similar dichotomy appears as in previous sections. If the action is automatic, e.g. prosecution automatically follows detection of a certain hazard, or a verbal warning automatically follows detection of another hazard then the level of functioning is rule following. If there is any discretion on the part of the inspector he is involved in problem solving.

(E and F) GENERATION OF SOLUTIONS

Any involvement of an inspector in generating solutions new to him or modifying standard solutions requires problem solving. Only if he is specifying solutions set out in detail by statute, instructions, etc. is his level of operation reduced to rule learning.

The dimension under discussion is not really relevant to these stages, since they, almost by definition involve problem solving action. Only if the decision and implementation processes were automatic and absolutely specified could they be said to involve only rule following.

3.2.3 SCOPE OF HAZARDS

A final dimension which is necessary in order to analyse the complexity of the inspector's job is one which will measure the breadth of the job, in contrast to the two previous dimensions which measure its depth. A suitable measure of this is the range of objectives or topics about which the inspector has to learn standards and solutions.

The sub-division of the sections found in many of the Factories Acts provides a basis for a classification of the variety of problems. The headings found are safety, health, welfare, education, periods of employment, truck, particulars, and enforcement. The boundaries of the categories are not sharp; e.g. lifting of heavy weights could come under safety since it can cause injury in the short term (hernia, pulled muscle etc.) or under health as it can produce long term degenerative changes. In such a borderline case an arbitrary allocation has been made.

It could be argued that restriction on periods of employment was originally introduced for health reasons, and that therefore this category should be a sub-division

of health. However, the health reasons were closely linked with educational and moral reasons. It has also long been separated out in the Acts under a separate heading, and differs from many of the other health provisions in being designed to control broad, non specific bodily malfunctions, not specific industrial diseases.

Welfare presents a particular problem for classification. It contains a miscellaneous collection of provisions, some aimed at safeguarding comfort e.g. seating, some at reducing disease e.g. first aid, washing facilities etc. It is hard to differentiate such general health-related provisions from provisions in early statutes coming under the heading of Health, but aimed at equally general objectives e.g. limewashing, ventilation. Therefore, in my analyses I have combined the two categories.

These and other minor amendments result in a list of categories as follows:

(1) Safety - the risk of bodily injury from mechanical or explosive force or from fire.

(2) Health and Welfare - the risk of discomfort and bodily disease, degeneration or malfunction from chemical, biological, radiation, environmental or physical strains.

(3) Periods of Employment - the risk of harm from excessive periods of working.

(4) Education - the risk of failure to obtain moral or academic training.

(5) Payment - the risk of being unfairly rewarded for labour.

(6) Enforcement - the range of problems presented by the legal functions of inspectors.

(7) Other - Miscellaneous problems, e.g. provision of air raid shelters, from time to time given to inspectors to administer.

Within these broad categories it is possible to analyse the number of specific objectives or hazards with which inspectors had to deal.

3.3 SUMMARY

This chapter has established that there is a lack of clarity both within and outside the inspectorate as to the role of central government inspection in health and safety. A number of interpretations of the statutory objective of the inspectorate are possible. No adequate classification of the dimensions of the job was available.

From a consideration of the functions necessary to arrive at a solution of problems in health and safety three classification dimensions have been derived on which the scope and difficulty of the job can be studied.

(1) Scope of Hazards with which the inspector is concerned, a measure of breadth of the job. This will be analysed in the next chapter by considering the number and variety of

objectives or hazards under the headings: safety, health and welfare, periods of employment, education, payment, enforcement and other.

(2) Stage of Solution at which the inspector is involved, under the headings as follows:

(a) Detection of Problem/Contravention/Hazard

(b) Establishment of Cause

(c) Specification of Standard

(d) Assignment of Priority

(e) Generation of Technical Solution

(f) Generation of Organisational Solution

(g) Allocation of Resources

(h) Implementation of Solution

(3) Level of Discretion or Functioning required of the inspector under headings derived from Gagné's hierarchy of learning (Gagné 1965):

Stimulus - response	SR
Concept learning - concrete	CC
- abstract	CA
Rule learning	RL
Problem solving	PS

The last two dimensions are measures of depth of the job, and will be analysed together in Chapter 5.

CHAPTER 4

SCOPE OF HAZARDS

"We have left undone those things which we ought to have done; And we have done those things which we ought not to have done; And there is no health in us".
Book of Common Prayer.

4.1 INTRODUCTION

The breadth of the job of an inspector of factories is determined by the range of premises which he is required to inspect and the number of problems which he is required to tackle within those premises. This chapter chronicles the way in which the breadth of the job has changed over the period of the inspectorate's history in order to identify the factors affecting this dimension of the job, and their implications for training needs.

The first section outlines the developments in the job under the broad headings of areas of concern set out in the last chapter. These are safety, health and welfare, periods of employment, education, payment, enforcement and other. The evidence for the discussion is drawn largely from the analyses of statutes, regulations and special rules. Clearly, inclusion of a subject in statute or subsidiary legislation provides only the latest date when inspectors became concerned with a particular problem. Evidence from inspectors and chief inspectors reports and from

instructions to inspectors indicates that there was usually concern with a problem informally for some time before that concern reached formal expression in statute, e.g. an instruction from the chief inspector to do all in their power to ensure that dressmakers and milliners were well fed and lodged went to inspectors dated 2nd September 1878, five years before the first welfare rules were officially made. However, the dates of statutes etc. indicate when problems officially became part of the job and hence when inspectors might be expected formally to be trained to deal with the problems and be censured for a failure to deal with them.

The analyses presented in this section are not intended as a detailed examination of the reasons for the developments, or an elucidation of the detailed changes in the law. That subject has been dealt with adequately elsewhere (e.g. Hutchins & Harrison 1911, Djang 1942, Thomas 1948, Blelloch 1938, Mess 1926, Andrews 1937). My purpose is merely to indicate how the hazards and problems with which the inspectors were charged with dealing expanded or contracted in scope with changes in statute. The analysis shows a steady overall expansion.

The remainder of the chapter draws out the themes from the detailed discussion and relates these to the findings from the interviews with serving inspectors.

4.2 DEVELOPMENT OF THE JOB

4.2.1 SAFETY

The 1833 Act contained no provisions aimed at safety. It was only with the 1844 Act that the inspectorate was required by statute to become interested in and

knowledgeable on the subject. The following subjects were dealt with specifically by that Act:

Cleaning of mill gearing in motion (S.20)

Work at mules (S.20)

Secure fencing of flywheels, prime movers and hoists (S.21)

The Act also gave inspectors the power to declare any other part of machinery dangerous (S.43) subject to a system of appeal and arbitration*. Accidents had to be notified to the Inspectorate if they produced injury preventing a return to work by 9 a.m. the next day. However the job of investigating the nature and cause of the accidents was given to the certifying surgeons not the inspectors.

The safety provisions of the 1844 Act were not extended to bleach and dye works or to lace factories when these were brought under regulation (in 1860 and 1861 respectively). However the 1864 Act did extend them to the trades for which it was enacted. This and subsequent extensions to new trades turned what had been a simple provision for the fencing of a limited range of machinery into a complex and increasingly wide ranging problem for inspectors. They were required to recognise the hazards of more and more processes and to know the fencing which could be regarded as secure for all of them.

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* The employer was not liable to prosecution unless an accident subsequently occurred, which perhaps indicates a lack of faith in the inspectors' ability in this area.

The requirement to report accidents in S.22 of the 1844 Act required reporting of all accidents which did not permit the injured party to return to work by 9 a.m. the next day. This would suggest that inspectors would have been interested in all dangers. However their reports indicate that they were not. They stuck to accidents from machinery (i.e. things for which there were statutory provisions). Horner particularly felt that the reportability criterion "gives a most exaggerated and false idea of danger from factory employment and creates a mischievous prejudice in the public mind against it" (Horner's Report April 1857).

In October 1859 he was claiming that 19 out of 20 reported accidents were not preventable by practical precautions.

The criterion of reportability of accidents was changed in 1871 so that only fatal accidents and non fatals relating to machinery and similar processes had to be reported. This was an example of a successful attempt to limit the breadth of the job to the specifications of the law (and incidentally to help to reduce the problem solving aspects of it). It was not until 1895 that non machinery accidents became reportable again, and they were at first treated separately from machinery accidents. They were only reportable to the inspectorate and not to the certifying surgeons, the chief accident investigators at the time.

In 1867 the scope of safety provisions was expanded, to include the mounting of powered grindstones as a hazard (S.10). The Act of 1878 added dangerous vats, pans and other structures containing hot liquid to the list of hazards (S.7) and expanded the inspectors' interest in fencing to include its maintenance as well as its design (S.5.4). The other provisions of the Act did not alter the breadth of the inspectors' area of interest although changes were made to the detailed provisions.

The 1891 Act removed the arbitration procedures of the 1844 Act and replaced them by an absolute duty to fence all dangerous parts of machinery (S.6). Power was given to the Secretary of State to designate dangerous trades and for the chief inspector to propose rules for such trades (S.8). The 1891 Act also introduced provisions for fire certificates for the first time (S.7). These were to be dealt with by local sanitary authorities, but by the 1895 Act inspectors were empowered to act in default of the local authority (S.10). This power required them to add a new area of expertise to their existing armoury. The 1901 Act added steam boilers to the catalogue of plant and machinery specifically provided for (S.11), although the inspector's role was limited so as not to include detailed inspection of the boiler.

The rules for dangerous trades made under S.8 of the 1891 Act had not contained many safety provisions and those which were present were largely fencing provisions, apart from one rule under the "Manufacture of Explosives, in

which dinitrobenzole is used, Rules" which provided for wooden work implements to prevent explosion risks. This provision marks the extension of the inspectors' requirements for knowledge into new areas, work methods, and control of explosions. After 1901 however, there was a great expansion of regulations (under S.79 of the Act) governing different processes which introduced new hazards and matters for concern.

In 1899 E. H. Osborn, who had been inspector for cotton cloth factories since 1890, became on his retirement Engineering Adviser to the Inspectorate. He stayed in this post for 4 years until he was allowed to retire, when H. P. Freer Smith became Inspector for Dangerous Trades and Dangerous Machinery. From that date a specialist engineering branch was effectively in being.

Although inspectors became fully responsible for all accident investigation in 1916, they still limited their interest to machinery accidents as the following quotation from the 1922 Annual Report shows.

'Machinery accidents probably include a high proportion of the more serious accidents, and it is with this class that the Factory Acts are specifically concerned and with which the inspectors have more particularly to deal".

The 1937 Act expanded the catalogue of specific machines, plant and processes subject to statute to include

the following:

work at unfenced machinery (S.15)

projecting set screws and bolts, toothed gear wheels (S.17)

lifts (S.22)

lifting tackle and machines (S.23/24)

floors, passages and gangways, ladders and stairs (S.25)

means of access (S.26)

explosive and inflammable dust (S.28)

steam and air receivers (S.30/31)

gasholders (S.33)

fire alarms (S.36)

To this list the 1959 Act added general provisions for fire fighting.

Some of these specific provisions were detailed specifications of the general provisions of previous acts - e.g. fencing. Others took specific provisions specified in the regulations for one or more dangerous trades and turned them into general provision for all of industry, e.g. lifting gear.

The expansion of the general provisions meant that the breadth of the safety knowledge of inspectors had to increase markedly. This is confirmed by the provisions of the large number of regulations made under the 1901, 1937 and 1961 Acts. In 1976 29 sets of regulations which dealt with safety were in force (see Appendix 4). These 29 regulations contained provisions dealing with the following broad subjects:

The design, layout, materials, construction, installation, positioning, use, strength, fire resistance, adjustment, fencing, repair, maintenance, fixing, earthing, stability, cleaning, disposal and demolition of plant and buildings;

The provision of work space, access, weatherproofing, means of escape, fire fighting and rescue and first aid;

The use of correct work methods, permit to work systems, examination and inspection, notices, warnings and alarms;

The provision of protective equipment, training and supervision;

Correct storage, stacking and transport;

The use of competent, authorised people.

The hazards dealt with in addition to those in plant, machinery and buildings were electricity, fire and explosion.

In addition to special rules, orders and regulations, the Inspectorate reached formal agreements with representatives of both sides of a range of industries, particularly in the years between the two wars on the standards to be applied in those industries, e.g. Cotton Agreement 1920. Recommendations from these Joint Industrial Committees and later from the Advisory Committees set up to advise the chief inspector on specific hazards and processes filled in and amplified the statutory provisions, as did the pamphlets published by the Inspectorate from 1905 onwards. The Codes of Practice and Notes of Guidance

issued under the 1974 Act are the successors of these documents. All these served to provide a vast bulk of detailed information for inspectors to absorb.

Since 1901 the definition of places under inspection has broadened to include docks, shipbuilding and repairing, and building and engineering construction. Finally in the 1974 Act all places of employment became subject to regulation and therefore inspection, thus adding machinery etc. in hospitals, educational establishments, waste disposal sites etc. to the range of hazards of interest. In the 1974 Act the scope of the interest of inspectors in safety was set out as being all situations that caused danger, but particularly:

Provision and maintenance of plant, premises, place and systems of work, working environment and means of access and egress (S.2-2a, 2-2d, 2-2e, 4) use, handling, storage and transport of articles and substances (S.2-2b) provisions of information, instruction, training and supervision (S.2-2c), design, construction, erection, installation, testing, examination of and information and research about, articles and substances for use at work (S.6).

The only major safety subject lost to the Factory Inspectorate under reallocation of duties after the 1974 Act has been the concern with fire provisions, except in premises, to be specified, where the fire risk is an integral part of the process risk.

This task has gone to the Fire Authorities.

In summary, the range of safety hazards which the Inspectorate has had to deal with has shown a steady increase in breadth as new areas of employment have been brought under regulation and in complexity as technology has advanced. What started as a simple concern with the control of obvious mechanical dangers, apparent to the unaided eye, on a small range of machinery, has become vastly more demanding. The inclusion of latent dangers, such as fabrication defects, contingency dangers such as explosion, escape from fire or stability of structures, and dangers such as electricity which have to be comprehended by the brain rather than perceived by the senses, have all made the inspector's job far more difficult. The extension of detailed regulations and requirements to the range of industry has meant that there has been a vast increase in the load on the inspector's memory to retain even a proportion of the legal requirements, formal agreements, codes of practice, and recommendations for good practice which are relevant to the particular plant and equipment with which he is faced.

4.2.2 HEALTH AND WELFARE

The provisions covered in this section are those which aim to eliminate hazards to the long term health and wellbeing of those protected by them. The boundary with safety provisions lies between hazards resulting in acute trauma instantaneously or within minutes and those which only result in harm in days, months or years.

Some health provisions are aimed at specific industrial diseases linked to specific causes; others have more general objectives. With these I have included provisions called, in later Acts, Welfare provisions such as ambulance and mess rooms. The environmental provisions are all dealt with under this section for convenience, although it could be argued that lighting provisions particularly are aimed more at safety than health.

The health provisions of the 1833 Act were limited to annual lime-washing of walls (S.26). The task of the first factory inspectors with regard to health was therefore simply an administrative one of discovering failure to carry out the lime-washing.

The 1844 Act added wet spinning processes as a hazardous occupation for inspectors to deal with (S.19). Children and young persons had to be protected from wetting and from steam.

In 1864 general cleanliness provisions were applied to factories for the first time (S.4). They had been required a year earlier in bakehouses (Bakehouses Act 1863 (S.4)) for which the factory inspectors were not responsible. Requirements for ventilation to render harmless injurious gases, dust and other impurities (S.4) and prohibition of eating in workrooms in specified trades (S. 6.4) were also included in the 1864 Act. The latter was no more than an employment provision, but the cleanliness and ventilation provisions added materially to the scope of the inspectors' job.

The ventilation provisions were strengthened in 1867 by the provision of powers to approve means of ventilation (S.9) and an additional provision was brought in to control overcrowding. (Schedule S.10).

When the Inspectorate took on the overseeing of inspection of bakehouses and workshops in 1871 they had to become concerned with the state of, and presence of effluvia from drains, waterclosets, earthclosets, privies, ashpits and water supplies (1863 Act S.4) and the provision of sleeping places in bakehouses (S.5).

The situation at the time of the 1878 Act was that the health provisions of the law were largely general ones aimed at ameliorating environmental conditions.

In 1883 the first detailed provisions were made for one prooess, white lead manufacture. They prohibited (Ss 2 and 3) white lead factories unless they conformed to the provisions of a schedule and were certificated. The schedule called for efficient ventilation (S.1) and added a number of provisions for the first time in factory legislation:

Sufficient means of washing hands and feet (S.2)
Supply of hot and cold water, soap, towels and brushes (S.2)
Sufficient baths for women (S.3)
Proper rooms for meals away from work places (S.4)
Specified protective overalls, head covering and respirators (S.5)
Sufficient supply of acidulated drink (S.6).

In 1889 the Cotton Cloth Factories Act was passed to control temperature and humidity in factories when artificial humidification was used. This was the first of a line of Acts and later regulations to govern this particular process (1897, 1901, 1911, 1926, 1929). It laid down detailed schedules of temperature and humidity permitted and the means by which they should be measured and recorded (Ss S - 6 & Schedule A). It also made open ended provisions for means of introduction of fresh air (not less than 600 cu.ft/hour/person) controlled by the employees (S.9) (this last stipulation was removed by the 1895 Act S.31), for prevention of inhalation of dust (S.12) and for inspectors to direct where the wet and dry bulb thermometers should be placed (S.7). An inspector (E. H. Osborn) was appointed to administer the Act, and there remained a separate inspector of Humid Textile Factories until 1903 when the work was given to the Inspector for Dangerous Trades and Dangerous Machinery (H. P. Freer Smith).

The 1891 Act made an important addition to the inspector's task by the provisions under S.8 for special rules to be proposed by the chief inspector to govern dangerous trades. Between 1891 and 1901 when the special rules provisions were replaced by provision for regulations and orders, special rules were introduced for the following trades and processes:

White Lead

Red and Orange Lead

Yellow Lead

Lead Smelting

Paints, Colours and Extraction of Arsenic

Enamelling of Iron Plates

Lucifer Matches

Earthenware and China

Explosives (di-nitro-benzole)

Chemical Works

Bichromate Works

Tinning and Enamelling of Iron Hollow ware

Electric Accumulators

Spinning and Weaving of Flax

Tinning and Enamelling of Metal Hollow ware and Cooking Utensils

Yellow Chromate of Lead

Brass Castings

Woolsorting

Bottling of Aerated Waters

Vulcanising of Indiarubber

Manufacture and Decoration of Earthenware and China

Transfers for Earthenware and China

Brick glazing

Hidesorting

Woolcombing

The special rules were largely constant in content. Most of them contained the provisions set out in the schedule to the 1883 Act for white lead. The subjects which the rules cover in total are set out below. Not all provisions appeared in all rules, but the corpus represents the sum of knowledge and ability required by inspectors at the time:

Protective Clothing; provision, use and cleaning, including respirators, overalls, head covers, shoes and socks and gloves.

Washing, toilet and bath accommodation; provision, use and cleaning, including provision of hot and cold water, soap, towels and brushes.

Accommodation for clothes.

Prohibition of food, drink and tobacco in workrooms.

Provision of food before work, of mess rooms and of sanitary drinks.

Medical examinations and certificates before employment and after illness, doctors' notes, medicine and reporting of disease.

Emergency wash bottles.

Registers of employment, examination and baths.

Cleanliness of rooms.

Ventilation and fans; provision and testing.

Temperature and lighting.

Time limits on employment.

Separation of processes.

Work Methods.

Construction and fencing of plant)
) see safety
Gangways and Space)

The rules provided for duties on employers to provide facilities and see that they were used. It also provided that workers must use the provisions and obey the rules.

Introduction of rules increased the complexity of the inspectors task in this area because of the non-uniform application of the provisions, but it did not greatly increase the difficulty of the task on the dimension under consideration here, or the total corpus of knowledge required. The only extensions beyond the provisions in

force up to 1891 were lighting provisions and requirements for storage for clothing and emergency wash bottles. All the rest were variations on already established themes.

The 1895 Act brought some of the concerns of special rules into general statute, e.g. temperature (S.32) and sanitary conveniences (S.35). It also added laundries to the places under regulation and included a prohibition of work in clothing processes where there was infectious disease (S.6) (defined as smallpox and scarlet fever). The Act also contained the first provisions for notification of industrial diseases (S.29) though their investigation was vested in the certifying surgeons, and remained with them and their successors, the Appointed Factory Doctors, and the Employment Medical Advisors even when the task of accident investigation was removed from them. Finally provisions were made for notice to be given to an occupier that a place was dangerous or injurious to the health of those employed there or to those in the district and for the place to be closed down (S.5). This open ended provision is reminiscent, in its expansion of the scope of the inspectors' knowledge needs, of the provision of the 1844 Act allowing any machine to be notified as dangerous.

In 1898 the first medical inspector of factories, Dr. Thomas Legge, was appointed largely as a result of problems in the earthenware and china industries (Djang 1942 p.60).

The 1901 Act did not add significantly to the breadth of the health provisions. It brought some provisions of

special rules into general statute, e.g. drainage of floors (S.8) provision of mess rooms (S.75) and it added minor provisions on insulation of humidifying pipes and shading of roofs in cotton cloth factories (Ss 90-96).

From this date on the provisions requiring new knowledge came largely in regulations made under S.79 of the 1901 Act (S.60 of 1937 Act and S.76 of 1961 Act) for governing specific trades and processes and in the welfare orders made under the Police, Factories, etc. Act 1916. The only innovations in Acts were as follows:

Lifting and carrying of heavy weights likely to cause injury. (1903 S.3 for children, 1937 S.56 for young persons, 1959 S.20 all persons).

Prohibition of white phosphorus (1908)

Prohibition of women and young persons on lead processes (1920)

Some provisions were transferred from specific regulations to the main act, and made thereby universal, by the 1937 Act, namely:

- Lighting provisions (S.5)
- Drinking water provisions (S.41)
- Clothing accommodation (S.43)
- Seating provisions for women (S.44)
- First Aid boxes (S.45)
- Offensive dusts, fumes, etc. (S.47)
- Eye protection (S.49)
- Shuttle kissing (S.50)

Welfare Orders (of which 22 were still in operation in 1976 - see Appendix 4) introduced the ideas of drinking water, ambulance and first aid rooms, treatment facilities

and competent first aiders, supervision of facilities, inspection for industrial diseases and issue of notices giving information on diseases.

The Regulations and Orders relating to health under the main Acts (of which 44 were in operation in 1976, See Appendix 4) specified many things which were similar to the safety regulations introduced over the same period, and much that was in common with the previous special rules (q.v.). The only new areas for provisions were for: provision of disinfection; compression and decompression methods; arrangements for dust disposal, food storage, maintenance and storage of protective clothing; control of air flow and draughts; taking of samples; provision of barrier creams, prohibition of spitting; detailed provisions for the prevention of harm from ionising radiation.

The health provisions of the 1974 Act are inseparable from the safety provisions, because of the enabling nature of the legislation, and the fact that all sections couple the elimination of risks to health and to safety as joint objectives of all sections. The discussion on p.66 (above) therefore applies equally to this section.

There is some indication that a new dimension of health, mental health, is being considered by some as now included within the provisions of the 1974 Act (see answer to parliamentary question from Christopher Mayhew M.P. during the debate on passage of the Bill) (Hansard 5 4 1974 v 871 col 1286-1394)

In summary, the health hazards which the inspectorate were charged with preventing were at first general ones. There was an awareness that dirt, effluvia, overcrowding, cold, dust and fumes were in general undesirable. It was not until the end of the 19th Century that inspectors had to become interested in the specific effects of individual substances.

The list of notifiable diseases gives an indication of the spread of this specific interest. Dates in brackets are those of the year when the disease became notifiable: Lead (1897), Phosphorus (1897), Arsenic (1897), Anthrax (1897), Mercury (1899), Toxic Jaundice (1915), Epitheliomatous Ulceration (1919), Chrome Ulceration (1919), Carbon Bisulphide (1924), Aniline (1924), Chronic Benzene (1924), Manganese (1936), Compressed Air (1938), Toxic Anaemia (1942), Cadmium (1967), Beryllium (1967).

Even then the remedies which the inspectors had to administer were largely still the same general ones of cleanliness of people and work places, enclosure and ventilation of processes, medical examination and treatment, and provision of protective clothing. It was only with the dangers of compressed air and of ionising radiations that significantly different hazards arose requiring a new range of prevention methods.

4.2.3 PERIODS OF EMPLOYMENT

The Act of 1833 was largely concerned with the periods of employment allowed to children and young persons. It presented inspectors with the problems of ascertaining

a child's age (S.14) the hours worked (Ss 2-10) and the meal times (S.6) and holidays (S.9) given. The only other complication was ascertaining whether extra working was permitted because of a list of permissible causes of loss of time, namely power failure and accident (S.3/4).

The 1844 Act extended the provisions to women, but otherwise simplified and limited the process of detection and proof of contravention of statute.

The Acts of the 1860's and 1870's extended the trades under inspection, and brought in exceptions and exemptions. The reasons for these latter were extended from problems with supply of power, and accident (1833 Act) to the following:

customs and exigencies of trades (e.g. 1867 Sch. 1870 S.1 etc.)

incomplete processes (e.g. 1867 Sch. 18 blast furnaces etc.)

weather conditions (e.g. 1870 Sch. 1-6 dyeing)

potential damage to material (e.g. 1870 Sch. 1-6 turkey red)

seasonal fluctuations in work (e.g. 1870 Sch. 2-1 fruit and fish preserve)

During the same period of time only silk mills were taken off the list of trades subject to exceptions.

The effect on the job of the inspector was a vast increase in complexity and reliance on memory.

Additional complications were added by the addition of religion and educational proficiency to age and sex as determinants of permitted hours of work. By the Acts of 1867 (Schedule S.26) 1871 (Workshops S.1) and 1878 (S. 50-1) different working hours were permitted to Jewish occupiers. By the Act of 1874 young persons of between 13 and 14 were only allowed to work a child's hours if they had not achieved a certificate of proficiency in reading, writing and arithmetic (S.12).

The codification of the previous acts in 1878 required 38 sections on periods of employment which specified three broad categories of premises, textile factories, non-textile factories and workshops, subject to different provisions. 25 of the sections then allowed specific variation on these provisions for specified trades or groups of people, or gave the Secretary of State power to make exemptions and exceptions in certain situations subject to certain provisions.

The Act of 1891 introduced a further criterion for inspectors to administer by prohibiting employment of women in the four weeks after the birth of a child (S.17). The Prevention of Cruelty to, and Protection of Children Act 1889 in extending protection to children in public entertainment also added another criterion which inspectors had to judge upon when deciding their course of action. The licence to perform for 7 to 10 year olds, which inspectors had to enforce, specified that it was issued subject to the health and kind treatment of the children being assured (S.3) a criterion harking back to the concerns of the 1802 Act with morals.

The developments in the Acts from 1878 onwards continued the trends to complication of the provisions governing periods of employment, as further trades were regulated for the first time (e.g. laundries), regulation was extended to outworkers, and shiftworking became a commoner occurrence.

The Women, Young Persons and Children Act of 1920 prohibited labour of children under 14 years of age (S.1) and so removed one category of permitted hours of work for inspectors to remember and enforce. In the Hours of Employment Act of 1936 however, two further reasons for exemption and exception of women from the night work provisions were introduced, being in a responsible position of management (S.2), and force majeure (S.1). The same act also limited men's hours for the first time, in auto sheet glass works (S.3) but allowed here even more reasons for exception, namely actual or threatened accident, urgent work to machinery and making good the unforeseen absence of a man on the next shift.

The 1961 Factories Act which consolidated the Acts of 1937, 1948 and 1959 has 36 sections covering periods of employment which regulate the following:

period of employment including Saturday and Sunday work,
hours of work,
overtime,
meal times and use of rooms at those times,
holidays,
shiftworking,
length of spells of work

The list is very similar to those subjects covered by the 1833 Act, and the task of the inspector is not qualitatively very different on this dimension. The number of criteria on which the inspector has to judge the appropriate standard to be applied have increased however. To age and fitness have been added sex, religion and responsible position of management; the few grounds for exemption and exception have grown to a lengthy list of reasons and processes, making the main difficulties of the task the memorising of all the possible permutations and combinations of hours which could legally be worked in the premises which are being visited, the application of the right standard to the right premises and the detection of contraventions against the background of such complex criteria.

The 1974 Act contained no specific reference to periods of employment.

4.4.4 EDUCATION

The main concern of the 1833 Act, apart from periods of employment, was education. The inspector was required to oversee the choice of a school for the child, to regulate certificates of attendance and fees (S.20/21) to procure the establishment of schools where there were none(S.22) and to assess the competence and fitness to teach of the schoolmasters and schoolmistresses (S.23).

The last two particularly were open-ended commitments requiring extensive contacts with local notables and a

nice sense of diplomacy to tread the often stormy line between established church and dissenters, the main providers of education (see e.g. Thomas 1948). The first inspectors were not wholly successful in treading this line. Sir James Graham's Education Bill of 1843, (Hansard v.67, 24.3.1843, col. 1411-77) which was strongly influenced by Robert Saunders' Anglican views on religious education (Historical Association 1971) was thrown out by the votes of the Dissenters. As a result the possibility of a state education system based on factory schools disappeared, and future developments stemmed from other bases. The job of schools inspection became increasingly under the aegis of the inspectors of education established in 1839 to regulate the allocation of Privy Council grants to schools (Hartley 1972). From the time of the 1870 Education Act the task of assessment of schools and of the proficiency of children was largely taken away from the factory inspectors and they were left only with the checking of attendance at recognised schools and of the possession of certificates of proficiency. The inspectors retained powers of action in default of the Education Boards on these subjects in the 1878 S.23/26 and 1901 (Ss 68-72) Acts, but with the raising of the minimum age of working to 14, and the abolition of the half-time system which resulted, by the 1918 Education Act, the involvement of the Factory Inspectors in the content of education came to an end. They were left administering the minimum age provisions for working which fall under the heading of Periods of Employment (above).

Education was thus an area of competence which occupied inspectors greatly in their early period of existence, but shrank progressively to extinction as their other areas of interest expanded.

4.2.5 PAYMENT

Legislation outlawing the payment of wages by goods in certain trades dates back to the fifteenth century (see Djang 1942 p.142). The complex of laws on the subject was codified in the Truck Act of 1831, but it was not until the passage of the Truck Act of 1887 that inspectors became responsible for the enforcement of that and the 1831 Acts.

The scope of the subject was defined by the recognised deductions and exceptions which were allowed to the general rule that wages should be paid in coin or bank notes. This involved considerable knowledge of the "true value" of items which could be deducted.

The Act of 1891 introduced the requirement (S.24) for occupiers in some processes in textile factories to provide piece workers with sufficient information or "particulars" of how their wages were calculated so that the workers could check the sums paid. The Act of 1895 (S.40) extended the provisions to all textile factories and made provision for their extension to other trades on the recommendation of inspectors. 20 orders were in force in 1976 under this section as reenacted in later Acts.

From its inception the particulars section of the Act was administered by a specialist inspector.

The Truck Act of 1896 tackled the problems of fines for poor workmanship, damage etc, which had become an important issue since the 1887 Act. The Shops Clubs Act 1902 made it illegal for membership of a friendly society to be used as a reason for refusing employment, and for agreement to join a shop or thrift club to be made a prerequisite for granting employment.

The Checkweighing in Various Industries Act 1919 gave workmen rights to check the weights and weighing used to settle payment*.

Subsequent Acts extended the permissible reasons for deductions from wages and altered the detailed provisions of the Acts, but did not alter the basic scope of enforcement (National Insurance (Industrial Injuries) Act 1946, National Insurance Act 1965, Payment of Wages Act 1960).

In the early years of the Second World War the assistant examiners of particulars were promoted into the general inspectorate, with general duties, leaving only a senior examiner (A. Menell) to carry on with the specialist functions. This represented a decline in the need for enforcement reflected in the reduction of prosecutions (see Table 7 below).

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* These provisions were applicable earlier in the mining industry but this was the first contact that factory inspectors had with them.

In 1974* the enforcement of the truck and particulars sections of the Factories Acts was transferred to the Wages Inspectorate of the Department of Employment. An area of required expertise was thereby removed from the factory inspectorate.

4.2.6 OTHER TASKS

Scattered through the statutes are sections which indicate that the job of the inspector was not simply a concern with health, safety, employment and education in the narrow sense. The earliest provision is S.45 of the 1833 Act which required the inspectors to report on "the State and Conduct of the Factories & Mills --- and whether such Factories and Mills are or are not conducted according to --- the Laws of the Realm". This was a formidable task if taken at face value and one requiring great general knowledge and more knowledge of law and of its contravention than any other person in the kingdom save perhaps the Lord Chief Justice.

The provision clearly could not be taken literally. In fact it was used to get the inspectors to report generally on the "State of Trade". These reports were sometimes considerable e.g. in 1888 the annual report had 110 pages on the state of trade, as against 39 pages on health and safety and 162 pages detailing prosecutions. The reports ranged over economic conditions, social conditions and industrial organisation. A foray into the realm of reporting on political activity in 1837 - 1840 was the subject of considerable scandal when it was

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* Truck Acts 1831 to 1896 (Enforcement) Regulations 1974.

revealed in the evidence to the Select Committee of 1840. However, reports on the other aspects of the state of trade appeared prominently in the inspector's reports up to the mid 1890's and the appointment of Dr. Whitelegge as Chief Inspector. After 1895 the main concern with this topic was the publication as a supplement to the annual report of annual, later periodic, returns of persons employed. This burdensome task was part of the inspectorate's duties until it was taken over by the statistics branch of the Ministry of Labour.

In times of war the inspectorate was seen as a source of trained manpower which could be called upon for advice and further duties. The introduction of Welfare Orders under the 1916 Police, Factories etc. (Miscellaneous Provisions) Act was one instance of the extension of duties into new areas. In World War II the inspectors were given the duties of carrying out the provisions of the Civil Defence Act 1939 in relation to air raid shelters, blackout and camouflage of factories.

4.2.7 LEGAL AND ENFORCEMENT

The legal and enforcement duties of the inspectorate have presented a range of problems and requirements for knowledge, which can be classified under the headings of collection of evidence and taking of action.

(A) COLLECTION OF EVIDENCE

All Acts since 1833 (S.17) have contained provisions for power of entry to premises to collect evidence. This was confined to inspectors until 1844 when

superintendents were given the same powers (S.3). The powers were extended to cover places which inspectors had reason to believe to be factories. These powers remained qualitatively much the same over the subsequent Acts, expanding quantitatively as the scope of premises under inspection expanded.

Powers of examination of people on oath and of requiring the keeping of registers, certificates (S.17) etc. were conferred by the 1833 Act. Although changed in detail these powers remained in essence the same through subsequent Acts, and were used extensively as a means of collecting information on accidents and contraventions. The scope of these registers and notifications came to cover the opening of factories, certificates of age, fitness, education, hours of work, work on specific processes, medical and equipment examinations, list of outworkers, reports of accidents and notifiable diseases and notification of proposals to make use of exemptions or to change hours.

Inspectors were later empowered to take measurements, photographs, and samples.

All of these legal powers carried with them requirements for detailed knowledge of their correct usage.

(B) TAKING ACTION

From 1833 there were provisions (e.g. S.29) guiding the decision as to whom to procede against in legal

actions. By S.30 lack of personal consent or connivance and lack of knowledge on the part of the master were accepted reasons for transferring procedings to the servant under the 1833 Act. The 1844 Act added "due diligence" as a defence (S.41) "wilful neglect" and "wilful or gross negligence" (S.31) had to be proved under the 1833 Act and were precursors of similar sections in later Acts, e.g. "wilful negligence", "misuse", and "wilfully and without reasonable cause endangering themselves and others" (1961 Act S.143).

As Acts were introduced which covered tenement buildings, contract work, design of machinery etc. a complex set of criteria were set up which the inspector had to apply to decide the responsibility of owners, occupiers, agents, hirers, contractors, tenants, employees and parents. This list was extended by the 1974 Act with its added provisions covering designers, importers and manufacturers of articles and substances for use at work (S.6).

The legal action open to the inspector has, since 1833 (S.35), always included the laying of informations and conduct of prosecutions (S.34) under the Summary Jurisdiction Acts before a magistrate*. The skills and correct legal procedures for these activities have therefore always been a part of the breadth of the job. From 1833 to

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* Since 1974 the conduct of cases in Scotland has been removed from inspectors and vested in the Procurator Fiscal.

1891 the inspector had power to issue notices certifying that machines were likely to cause bodily injury and requiring them to be guarded (S.43). This issue was subject to an arbitration system and was unpopular with inspectors who thought it did not work. It was replaced in 1891 by power for the Secretary of State to certify processes or machines as dangerous (S.8). The notice procedure in an extended form was reintroduced in 1974 (Ss 21-24) with appeal to an industrial tribunal, thus adding a further legal body before which inspectors had to be able to conduct their cases.

In 1895 (Ss 2-4) inspectors were given power to obtain court orders prohibiting processes, machines or use of premises either immediately or in due time depending on the degree of danger involved. This provided a further legal procedure to master. The 1974 Act simplified the procedure and made it a notice procedure (S.22) subject to appeal to the industrial tribunal (S.24) as with the improvement notice provisions described in the last paragraph.

From 1844 to 1878 the Secretary of State was empowered to give inspectors permission to take cases at common law to sue for compensation on behalf of workers involved in machinery accidents (S.24). This entailed knowledge of procedure in a further range of cases.

From 1878 onwards provisions allowing exceptions and exemptions, particularly from employment provisions,

became more common, and in a number of cases the process of issue of the necessary certificates was a part of the inspector's job. In later Acts (e.g. 1937) the process of application for issue included the taking of ballots among employees over introduction of shiftworking which the inspector had to oversee.

In summary the legal and enforcement duties of the inspector have always been an important part of the breadth of his job. There has been a steady expansion in the problems of identifying liability for offences and a fluctuation in the variety of courses of action open to the inspector. The latter has shown in increase in the 1974 Act with a return to the use of notice procedures as an adjunct to prosecution.

4.3 GENERAL THEMES

4.3.1 SUBJECTS COVERED

Of the broad areas of concern to the inspectorate over its history, education and payment are the only ones which are no longer part of the job, apart from the minor tasks assigned to the inspectors in times of war. All other areas, and particularly safety, health and welfare have shown steady expansion in breadth of subjects covered. Table 5 summaries the changes in emphasis of the inspectorate using the somewhat crude measure of numbers of sections in each of the principal Acts devoted to each topic. Table 6 summarises the

TABLE 5

NUMBER AND PERCENTAGE OF SECTIONS OF PRINCIPAL ACTS DENOTED TO PARTICULAR TOPICS

	Safety			Health & Welfare			Periods of Employment			Education			Payment*			Admin. Provisions		Total
	No.	% A	% B	No.	% A	% B	No.	% A	% B	No.	% A	% B	No.	% A	% B	No.	% A	
1833	0	0	0	1	2	5	17	35	77	4	8	18	0	0	0	26	54	48
1844	7	10	23	2	3	6	20	27	65	2	3	6	0	0	0	42	58	73
1878	7	7	12	10	9	17	38	36	64	4	4	7	0	0	0	48	45	107
1901	18	11	17	36	22	34	46	28	43	5	3	5	2	1	2	56	34	163
1937	38	24	35	36	23	33	32	20	29	0	0	0	3	2	3	51	32	160
1961	46	25	37	40	22	32	36	19	29	0	0	0	2	1	2	61	33	185
Regulations at Oct. 1976	55	27	29	78	38	42	33	16	18	0	0	0	21	10	11	19	9	206

% A represents the percentage of total sections of the Act devoted to a topic.

% B represents the percentage of non-administrative sections so devoted.

Truck was governed by separate Acts not enforced by factory inspectors until 1887 and was not incorporated into later consolidating acts.

N.B. Miscellaneous problems (6 above) were all imposed by other Acts.

TABLE 6

FIRST OCCURENCES OF SUBJECTS IN STATUTE ETC.

ENFORCED BY FACTORY INSPECTORS

SAFETY

Cleaning of Machinery	1844
Fencing of Dangerous Parts of Machinery, Hoists etc.	1844
Work at Mules	1844
Mounting of Grindstones	1867
Fencing of Vats etc.	1878
Fire Escapes	1891
Pressure Vessels	1901
Lifting Gear	1904
Means of Access and Working Position	1906
Electricity	1908
Fire Fighting	1921
Sources of Ignition	1921

HEALTH AND WELFARE

Limewashing	1833
Steam and Wetting	1844
Cleanliness	1864
Meals in Workrooms	1864
Ventilation, dust, gases and fume	1864
Overcrowding	1867
Effluvia	1871
Toilets	1871
Sleeping Places	1871
Baths and Washing	1883
Messrooms	1883
Protective Clothing	1883
Medicated Drinks	1883
Temperature	1889
Humidity	1889

TABLE 6 (Continued)

Fresh Air	1889
Clothing Accommodation	1891
Emergency Wash Bottles	1891
Lighting	1891
Infectious Disease	1895
Industrial Disease	1895
Lifting of Weights	1903
Disinfection	1905
Waste Disposal	1905
Drinking Water	1916
First Aid	1916
Seating	1916
Entry into Vessels	1922
Compressed Air	1958
Ionising Radiations	1968
Noise	1974
	(Code of Practice 1972)

EMPLOYMENT

Age	1833
Fitness	1833
Hours of Work including overtime, nightwork, shiftwork.	1833
Meal Times	1833
Holidays	1833
Spells of Work	1844
Kind Treatment	1889
Proximity to Childbirth	1891
Exceptions for:	
power failure	1833
accident	1833
customs and exigencies of trade	1867
incompleteness of process	1867

TABLE 6 (Continued)

Religion	1867
Educational proficiency	1874 - 1918
weather conditions	1870
potential damage to materials	1870
seasonal fluctuations in work	1870
responsible position of management	1936
force majeure	1936
urgent work	1936
unforeseen absence	1936

EDUCATION

Attendance	1833
Establishment of Schools	1833 - 1870
Competency of pupils	1874 - 1918
Competency of teachers	1833 - 1870

PAYMENT

Payment in coin	1887
Deductions for certain goods and services at value and by written contract	1887
Particulars	1891
Fines	1896
Inspection of weights and measures	1901
Deductions for provisions of Act	1937

OTHER TASKS

State of Trade	1833
Air Raid Shelters	1939 - 45
Blackout	1939 - 45
Camouflage	1939 - 45

spread in subject matter by indicating the dates at which particular subjects first became subject to statute, regulation or special order.

The figures indicate that from 1833 until about 1890 the inspectorate was predominantly an employment inspectorate, with important, but minor involvement in general health and safety (see e.g. Baker's report of October 1866 indicating that employment hours were the inspector's main burden). From 1890 until the Second World War there was a steady transformation into a safety and health inspectorate with important but minor involvement in employment (see e.g. Annual Report of 1927 indicating that accident prevention was the main concern of the inspectorate). Since the war that change has proceeded even further until at present the inspectorate's concern is almost exclusively with health and safety, with the emphasis moving to the specific aspects of health (e.g. Annual Report for 1969). Employment has faded almost completely from the inspectors' concern, as is witnessed by the fact that no inspector in the sample interviewed mentioned the employment provisions or problems associated with them during the course of my interviews with them*.

This change in emphasis is perhaps better indicated in Table 7 which shows the prosecutions taken under sections of the Act relevant to different topics. Prosecutions as a measure of emphasis are not ideal, since they are open

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* The reasons for this change of emphasis are beyond the scope of this thesis, but the explanation might be sought in a combination of more effective trades union action, and a change in the importance of hazards in the minds of an increasingly technological inspectorate.

TABLE 7

PROSECUTIONS IN EVERY TENTH YEAR

(EXTRACTED FROM REPORTS OF INSPECTORS/CHIEF INSPECTORS)

	Safety		Health & Welfare		Periods of Employment		Education		Payment		Adminis. trative		Total
	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	
1840	0	0	4	2	111	60	49	26	0	0	23	12	187
1850	24	4	6	1	422	73	44	8	0	0	80	14	576
1860	10	1	3	0.3	815	77	55	5	0	0	91	9	1064
1870	16	2	3	0.4	550	83	38	6	0	0	38	6	662
1880	21	4	0	0	398	67	128	22	0	0	46	8	593
1890	39	1	11	0.4	2684	89	80	3	0	0	193	6	3007
1900	159	5	148	5	2412	73	9	0.3	46	1	512	16	3287
1910	291	8	138	4	2698	74	7	0.2	138	4	372	10	3644
1920	173	16	57	5	645	61	0	0	1	0	173	16	1049
1930	558	27	141	7	1151	56	0	0	23	1	178	9	2051
1939+	506	38	12	1	707	54	0	0	16	1	64	5	1310
1950	651	74	18	2	159	18	0	0	1	0	48	5	877
1960	1460	65	356	16	138	6	0	0	21	1	276	12	2251
1970	2198	75	294	10	150	5	0	0	0	0	298	10	2940

+ Figures for 1940 not available.

The classification system used in the reports changed somewhat over the period covered, but the table represent a reclassification where the following amalgamations have been made.

Forms, Employed Persons, Other, Obstruction, Registers, Not Reporting Accidents = Administrative.

Particulars, Truck = Payment.

Sanitation, Welfare, Lead Paint, Dangerous Trades, Infectious Diseases, Laundries, Bakehouses, Cotton Cloth, Public Health = Health & Welfare.

Regulations*, Tenement Factories, Fencing, = Safety.

Cruelty to Children = Employment.

* These were only quoted separately from 1925-1951

to influence by other factors such as the ease of writing enforceable regulations, the ease of obtaining convictions, and the degree to which the discretion of the inspector has been exercised in particular categories of breach. (see Wilcox 1972 for a general discussion of the subject of discretion in prosecution). Nevertheless taken with the other evidence the figures support the conclusions drawn.

The expansion of subjects covered by regulation can be traced to the extension of regulation to new industries (described in the next section), to advances in epidemiological methods available to recognise and measure occupational diseases (e.g. carcinogens, noise induced deafness) to advances in technology (see below) and to expanding concepts of the desirable and necessary conditions at work (e.g. welfare provisions, canteens, seating, mental health).

4.3.2 INDUSTRIES COVERED

The Inspectorate when it was first set up in 1833 had only the textile factories of the country to inspect, some 4000 mills in all. Textile related industries such as Printworks, Ropeworks, Bleaching and Dyeing and Laceworks were added to the list in the next 30 years. It was only in the 1864 Act that industries radically different in technology from textiles were added to the inspector's burden, e.g. pottery, lucifer matches, percussion caps and cartridges. The total of premises under inspection by this stage had reached 8000. In the next decade there was a massive increase in both numbers

of premises subject to inspection (up to 110,000 in 1872) and the range of industries covered, as all manufacturing works were brought under regulation irrespective of the process being carried on.

Over the next 30 years there was a continuing debate over the inspection of workshops (premises where no mechanical power was used). These premises were shifted from local authority inspection to factory inspectorate inspection and back again a number of times, either wholly (i.e. all provisions of the Acts) or in part (i.e. sanitary provisions only, or certain classes of workshop only) (see e.g. Djang 1942 for a detailed discussion). By the early years of this century over 200,000 premises were subject to inspection.

The later legislation brought about a further, but slower expansion in the industries covered by statute, adding e.g. docks and laundries (1895) and construction sites. The number of premises subject to inspection rose to a peak of 300,000 around 1920 and them fell slowly but steadily to around 200,000 in 1970, as many small non-powered workshops closed.

The 1974 Act added another large group of premises by extending regulation to all places of employment. Prominent among these "new entrants" were local government premises, hospitals and educational establishments. This latest in a line of expansions has presented the Inspectorate with the same problems of coming to terms with new technologies and new customs and exigencies of trade (a favourite term for introducing exemptions and exceptions

in Acts) as earlier expansions. The breadth of the inspectors' job has consequently been increased, and with it the requirement for recognition and understanding of greater and greater numbers of machines, processes and trade practices, and the way in which provisions of the Acts, e.g. for fencing, ventilation etc, apply. The extent of such expansion is also shown by the issue of detailed regulations for specific industries to interpret and put flesh on the general provisions of the Act. Appendix 4 gives the list of regulations in force in 1976.

4.3.3 TECHNOLOGICAL CHANGE

Since 1833 there has obviously been a vast change in the complexity and sophistication of technology which inspectors have been faced with. This has interacted with the changes mentioned in the last section to produce a greater breadth of the inspection task. Measures of the advance of technology appropriate to this thesis are extremely hard to obtain. What would be required would be a measure of the time of introduction of all new processes, materials etc. into general working premises and of the time when the associated problems could have been and were recognised. Such measures are not available in any easily applicable form, and the workload entailed in collecting the data from such primary sources as patent applications or detailed histories of technology was beyond the scope of this thesis.

It is sufficient to establish that change did take place and that it was recognised to have affected the work load.

Two examples will suffice.

(A) POWER

At the end of the 19th Century the majority of places under inspection did not use mechanical power. The 1911 Committee on Accidents appointed to consider the reasons for a large increase in reported accidents over the preceding period pointed to the increased use of powered machines and the increased speed of machinery as two major causes of the increase.

At a similar time electrical power was being introduced widely in factories, adding a new hazard to the inspectors' list.

Over the succeeding years the proportion of non-power premises fell steadily*. There was also an increase in the use of electrical and later electronic equipment not only for powering, but for controlling machines.

These changes replaced minor hazards of hand power with the greater hazards of mechanical power, and then the visible hazards of mechanical power with the hidden hazards of electrical power.

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* 53.5% in 1920, 40% in 1930, 26% in 1940 (figures from Chief Inspector's Annual Reports.)

(B) CHEMICALS

Chemicals of one sort or another have always been used in industry, but the extent of use has clearly increased both in terms of the number of industries using them and the range of chemicals available. A theme of the annual reports of the chief inspector in recent years (e.g. 1969, 1970, 1973, also Medical Inspector's report for 1966) has been the increasing importance of industrial health and of the hazards from chemicals. Both the scale of hazards (see Annual Report of 1972 for comment) and the range of hazards recognised (cf Carcinoganic Substances Regulations 1967) have increased.

These two examples could be multiplied many times. They serve to establish the theme that technological change has increased the breadth of the inspectors' job.

INTERVIEW DATA (See Tables Appendix 2)

The breadth of the inspectors knowledge requirements was mentioned as a problem by 22 inspectors in my interview sample (Table 4). It was an important factor in the problem of setting priorities for action mentioned by 17 interviewees (Table 4) and in coping with the workload (Table 5) mentioned by 6.

9 interviewees pointed to the increased load imposed by new entrant industries under the 1974 Act and 5 to the increasing complexity of industry as changes within their

tenure of the job. (Table 3).

The effect of the breadth of the job can be seen in the demand for a good memory specified by 13 inspectors as a quality for new recruits (Table 9).

CHAPTER 5

DEPTH OF THE JOB

"By the pricking of my thumbs, something
wicked this way comes". Macbeth Act 4, Scene 1

5.1 INTRODUCTION

The previous chapter set out one dimension of task difficulty for the inspector, the sheer volume of subjects in the form of hazards or problems that he has had to encompass in his knowledge. The other dimension of the job, its depth, is dealt with in this chapter. The discussion will use the dimensions derived in Chapter 3 of:

(1) Stage of solution,

(2) Level of functioning or discretion.

The dimensions are summarised in Table 8 for easy reference.

This table will be found on a fold out section on p.161 so that constant reference can be made to it. Letters in brackets in the text refer to this table.

The evidence from analysis of statute and from other documentary sources is presented in chronological sequence to show the way in which the inspectors' job developed or was seen to develop with time.

Appendix 10 contains detailed analyses of the 1833 and 1961 Acts and the first nine sections of the 1974 Acts as illustrations of

the type of analysis on which the discussions in this chapter are based.

The focus of attention in this chapter is the extent to which inspectors became involved more and more with time in the questions of technical and organisational solutions, and the way in which they received more discretion in statute to establish what were to be considered acceptable standards and solutions.

5.2 THE 1833 ACT

The 1833 Act was the first to set up a paid central government inspectorate. Many of its provisions were similar to those in the abortive Acts of 1802-1831 which had relied upon visitors appointed by justices of the peace to enforce them.

The Act set out the overall objective of the inspectors as follows: "(they) shall carry into effect the powers, authorities and provisions of the present Act". (S.17). Objectives somewhat beyond this were laid upon the inspector by the implications of the powers given to the inspectors under S.17 to "make inquiry respecting their (children and any other persons employed) Condition, Employment and Education". This broader, open-ended objective was reinforced by S.45, providing for reports to be made at intervals to the Secretary of State on the "State and Condition of the Factories and Mills and of the Children employed therein and whether such Factories or Mills are or are not conducted according to the Directions of this Act and of the Laws of the Realm".

The implication of these sections is that the inspectors had a twofold function in respect of detection of problems. They were charged with detecting breaches of the law (RL) and with a broader

detection of harm (PS) within the scope set out in the preamble of "regulating the labour of children and young persons".

S.18 gave inspectors the power "to make all such Rules, Regulations and Orders as may be necessary for the due execution of this Act". This power apparently gave them carte blanche to specify at their discretion the solutions to the evils which the Act was designed to remedy (i.e. E & F. PS). In practice they did not use the power in that way. The orders etc. which were made were confined to the specification of certificates and registers by which mill owners were to keep lists of people, hours worked, hours of schooling, ages etc. These were all designed to assist with problems of detection of contraventions (A. RL) (See Joint Report October 1836).

The majority of the other sections of the act required a rule learning level of functioning at stages A to C i.e. the standards were laid down in the Act and the inspector merely had to detect contravention and take appropriate action. In some cases, e.g. recognition of machinery and processes to which the Act applied, this level of functioning was reduced to a simpler process of stimulus-response or concept learning.

The sections which required functioning at later stages in the solution process or operating discretion or problem solving were as follows:

(1) Determination of the age of children (Ss 2, 7, 8, 14, 15,) (A.PS).

(2) Specification of "extraordinary accident" permitting overworking (S.4) (A/C.PS)

(3) Specification of strength and appearance of a 9 year old (Ss 11, 12) (A/C.PS)

(4) Specification of the form and use of certificates of various sorts (Ss 11-15, 21) (A/C PS)

(5) Examination of persons employed (S.17) (B.PS)

(6) Appointment of a school for a child whose parent/guardian had not done so (S.20) (F.PS)

(7) Specification of "allowable" reasons for absence from school (S.21) (C.Ps)

(8) Establishment of schools if none were available (S.22) (F-H PS)

(9) Specification of competence or fitness of a schoolmaster (S.23) (A/C PS)

(10) Withholding of the salary of incompetent/unfit schoolmasters (S.23) (G RL)

(11) Deciding allowable reasons for exemption from limewashing (S.26) (A/C PS)

(12) Specification of form and levels of legibility and conspicuousness of display of abstracts (S.27) (A/C PS)

(13) Definition of wilful default (S.29), consent, connivance, knowledge or gross negligence (Ss 30, 31) (B/C PS)

(14) Deciding what constituted obstruction (S.32) (A/C PS)

(15) Deciding upon appropriate penalties when acting as justice (Ss 28-32) (C PS)

(16) Laying of informations and conduct of prosecutions (Ss 34-37) (PS)

(17) Administration of the penalties from prosecutions (S.43) (C/G PS)

It was only in the area of education that inspectors were involved with solutions (F-H), i.e. in activity furthering the establishment of schools. In the whole of their job they were however faced with a number of problems of definition of standards and of detection and measurement. In summary the skills and knowledge

(1) Ability to recognise processes, premises etc., which would have required some technical knowledge of the textile industry.

(2) Ability to detect transient contraventions by collecting information from witnesses and other sources, making inspection etc. Powers to do this were provided by Ss 17, 38 and 39. Powers of entry were provided by Ss 17, 19 and 33. The inspectors also used their powers to make rules to require registers and certificates to be kept to help with this process.

(3) Measurement of age and fitness of children. This presented many problems of definition, and interpretation in the face of lack of accepted criteria. No birth certificates were available before 1837 and there was a continual problem of attempts by all parties concerned, children, parents, masters and even surgeons, to deceive the inspectors by falsifying ages and certificates. In the absence of reliable certificates the task became one of specifying criteria of height, strength and appearance which were acceptable. The provisions of the Act allocated part of this task to what may be called the first specialists, recognised surgeons or physicians, but the inspector still had to countersign certificates and so had to know the criteria himself.

(4) Establishment of schools and assessment of the quality of schoolmasters. These objectives when broken down further revealed particular problem areas. Establishment of a school required money, materials, and people to teach in it. S.20 allowed the inspector to authorise deductions from wages for payment of schooling. S.43 allowed for the fines from prosecutions to be used as directed by the J.P. or inspector for the benefit of schools for factory children. S.23 allowed inspectors some control over the teachers by withholding

their salary if they were incompetent or unfit to perform their duties. The inspector still had to evolve his own criteria for establishing competence and fitness, whether moral fitness, intellectual competence or teaching competence.

(5) Ability to set standards on a series of largely common sense matters of exceptional circumstances allowing non-compliance with provisions.

(6) Prosecution and legal tasks. These required some problem solving to establish responsibility for offences, and then legal ability to bring and conduct cases. Inspectors therefore needed to know the standards of legal proof and of procedure. S.34 of the Act empowered the inspectors to hear cases themselves, and therefore they were the ones who could decide what evidence and standard of proof they would accept. Since there was no appeal (S.42) except in forgery cases it could be said that these sections therefore resulted in no training requirement whatsoever. This would be an over cynical view however, and would imply that there was no outside standard by which inspectors could have judged and be judged as to whether they had prosecuted or convicted wrongly. In fact cases could be and were more often than not, heard before J.P.'s who brought their own standards of proof to the situation, constrained by the weight of legal interpretation and precedent. Therefore there were training or learning implications in these sections which can be summarised under the headings of knowledge of accepted standards of proof, and knowledge of legal court proceedings such as rules of evidence, summoning of witnesses, taking of statements, imposition and collection of penalties. Inspectors also used discretion to decide whether or not to prosecute. This discretion was never taken away from them

and has presented a potential training need of a high order ever since.

5.3 1833-1844

The years between 1833 and the next Factory Act in 1844, were marked by considerable conflicts over detection of hours worked and specification of age (see Thomas 1948 and the inspectors reports for those years). They were also marked by the great use made of the provisions of the Act to enquire generally into the state of labour in the mills and the best way in which it might be regulated. (A - C PS). The inspectors set out with a will to draw up rules for the recording of information on hours worked and children employed (e.g. Rickards' Report of August 1834). These rules served to reduce somewhat the problems of detection of transient contraventions. The inspectors also set out to lay down rules for determining the age of children, which met with considerable objections on the grounds that the criteria (of height and strength) were not sufficiently indicative (e.g. Hansard 20.7.1838 v. 38 col 383-445, Thomas op cit p.126 et seq).

The information from registers etc. on contraventions was supplemented by evidence from other mill owners.

"a kind of continual vigilance of one manufacturer over another, lest one should gain an advantage over the other by working an undue period of time" (Horner's evidence to 1840 Select Committee).

A constant theme of the inspectors' researches (PS) as set out in their reports was the need for legislation on fencing of machinery:

"I have experienced the great personal hazard to which an officer

is subject who inspects thoroughly and intimately factories so circumstanced (crowded with machinery). The efficiency of the inspection is moreover materially lessened by the attention of the officer being constantly required to protect himself from serious injury in apartments where his person is so continually exposed to contact with unguarded machinery; the accidents which are perpetually occurring to the workpeople in these places sufficiently indicate the danger". (Howell's Report of March 1839).

An extension of the inspectors' duties under S.45 to report on labour questions was provided by the instruction from the Under-Secretary, Fox Maule, to the inspectors to report on Chartist Meetings. This was revealed by a leak of information from a superintendent (Beal) to John Fielden M.P. a member of the 1840 Select Committee, and resulted in heated exhanges with Stuart at the committees hearings (Evidence of 1840 Select Committee) and in a debate in the house of Commons (Hansard 17.7.1840 v. 55 col. 785-809). No further such instructions were issued.

In these years also the controversy over the discretion allowed in the use of prosecutions or of other means to secure compliance was first raised. It appeared as a direct clash between Stuart, inspector for Scotland, and his colleagues and is chronicled particularly in Stuart's reports of 1836-1840. Stuart's philosophy is summed up in the following extracts:

"The object (of the Acts) can only be obtained by acting with great discretion, moderation and forebearance --- by persuasion, by explanation again and again repeated, and by refraining from all angry and irritating discussion and altercation, than by recourse, except in extreme cases, to suits for penalties or coercive measures of any kind" (Stuart Dec. 1836 report).

"I considered myself to be entrusted with so much discretionary power as to authorise me to forebear legal proceedings in every case of deviation from the Act, where there has been no wilful violation of the law, nor culpable negligence and also in every case where, by the dismissal of a spinner (the party truly blameable) or by having the party really at fault punished by the master spinner, it appeared to me that the object of having the provisions of the Act enforced in time to come might be most securely attained" (Stuart Dec. 1840 report).

His views were clearly not in line with those of this colleagues nor his superintendents (e.g. Beal's evidence to 1840 Select Committee) nor were they acceptable to some members of parliament (e.g. Hansard 4.3.1839 v. 45 col 1164-1187). However this was a matter of disagreement over degree, not principle. None of the other inspectors advocated prosecution as an automatic result of contravention. All therefore operated some discretion (D. PS).

5.4 THE 1844 ACT

The 1844 Act simplified the inspectors' tasks in that occupiers were required to keep more registers of hours and persons employed and to send notification to inspectors of the opening of a factory and of the intent to take advantage of exemptions (Ss 31, 33, 34). Detection of illegal working was made easier by limiting spells of work within an allowed period of employment (Ss 34, 36) and by making it illegal to work different groups of people on a multitude of different work and rest periods (Ss 26, 30, 36, 37). The form of abstract to be displayed was specified (S.28). Measurement difficulties were reduced by linking proof of age to birth certificates which had been required since the Births and Deaths (Registration) Act 1837 (Ss 15, 54). Time was to be measured by designated public

clocks usually railway clocks.(S.26); the dimensions of the proficiency of schoolmasters were laid down, as were the reasons for absence from school, the deductable fees and the hours of schooling (Ss 31, 38, 39). Control over issue of certificates of fitness was tightened by giving inspectors powers to appoint certifying surgeons, whose certificates alone would be acceptable, and to make rules for their conduct. (S.8).

The inspector's sanction against incompetent schoolmasters was altered from withholding salary to cancelling attendance certificates. This was in line with the general reduction in the judicial powers of inspectors brought about by the Act which repealed his powers to make rules etc. and to hear and decide cases as though he were a justice of the peace (S.2). (Reduction of problem solving to rule following).

All these were moves to remove from the inspector discretionary powers to specify standards and rules, but also to reduce the difficulty of detection and proof of contraventions. The Act also laid down clearer definitions of responsibility for offences and procedures for serving of notices and laying of informations (e.g. Ss 41, 51, 52).

On the other side of the coin the 1844 Act added complications requiring functioning beyond A-C or beyond RL as follows:

(1) Deciding on sufficient means for protection from wetting and steam in wet spinning processes (S.19) (A/C/E PS).

(2) Assessment of due diligence as a defence for an occupier, which had to be considered in determining who to proceed against. (S.41) (B/C PS).

(3) Deciding where women,children or young persons were liable to pass or work (Ss 21, 42) (A/C PS).

(4) Deciding what constituted secure fencing (Ss 21, 42, 48) (A/C/E PS).

(5) Specification of any part of machinery liable to cause bodily injury (S.43) (A/C PS).

(6) Conduct of common law cases on behalf of accident victims (S.24) (PS).

(7) Investigation of accidents (S.43) (A.PS).

(8) Deciding what information to call for from employers (S.27) (A PS).

(9) Deciding reasons for allowing young persons to work at different times from those specified (S.36) (A/C PS).

The task of investigation of accidents was given to certifying surgeons not to inspectors, perhaps because the former could be on the spot sooner (24 hours was allowed for notification, 24 hours for investigation).

The skills of specifying danger were ones which had previously been specifically considered unlikely to exist among inspectors (Report of Commission of 1833 and Hansard 13.8.1833 v.20 col. 583-6). The inspectors had indicated that the task was possible.

"it is probable that experienced mill owners and engineers might be able to specify certain parts of the machinery which it should be made by law imperative, under heavy penalty, to fence off". (Horner's report July 1840).

Their evidence to the 1840 Select Committee had also indicated that they felt able to undertake the task themselves (e.g. evidence of superintendents Trimmer and Bury).

The 1844 Act made provision (S.43) that any disagreement over danger was to be referred to arbitrators "skilled in the construction of the kind of machinery referred to in the notice". This carried with it the implication that inspectors were only capable of laying down standards of danger in the simpler cases where they could rely on the rules laid down by previous decisions. (RL not PS). The arbitrators were also to decide whether it was possible to fence the machine and if so how; i.e. generation of the technical solution (E.PS) was considered outside the province of the inspector.

In summary, the 1844 Act left inspectors with two main areas of discretion apart from discretion over prosecution; education, particularly in the establishment of schools and assessment of masters; and safety (and to a lesser extent health) in the assessment of danger, and the adequacy of means for its prevention. In assessing means rather than ends they were being drawn into specification of solutions (E). Specialists, the certifying surgeons, were responsible for certificates of fitness and for accident investigation. The problems of detection were simplified by reducing many of them to checking of registers and certificates.

5.5 1844-1878

22 relevant Acts were passed between 1844 and the 1878 consolidating Act (see Appendix 3), but the effects on the depth of the inspectors' job were comparatively minor.

5.5.1 EMPLOYMENT

Many new trades were regulated and, particularly in the employment sphere, exceptions and exemptions proliferated (see Chapter 4). This increased somewhat the amount

of standards which inspectors had discretion to specify in determining allowable deviations from permitted hours or periods of employment (A/C PS). However the criteria for allowing exemptions were fairly clearly laid down (e.g. religion (1867 Act Schedule), possession of certificates of proficiency in reading, writing and arithmetic (1874 Act S.12)). Wide use was also made of notification and of registers to ease detection problems.

5.5.2 EDUCATION

The discretionary powers of inspectors in assessing schools and schoolmasters were curtailed from the passage of the 1870 Education Act onwards. These powers and the decision making involved with them were transferred to the Board of Education and the Factory Inspectors' job was reduced to a largely administrative one of checking the possession of certificates of age and proficiency. (PS→RL).

5.5.3 HEALTH

Only in the sphere of health provisions were important changes made. The 1864 Act introduced new criteria to be specified by the inspector (A/C PS); cleanly state (S.4) injurious gases, dusts and other impurities (S.4), rendered harmless (S.4), and customs of trades allowing specification of areas exempt from whitewashing (S.6.7). S.4 also introduced the technical solution of ventilation (E). The 1867 Act went further. It introduced criteria decisions on overcrowding (dangerous, prejudicial to health) and required (S.9) the use of a fan or other mechanical device to remove dust if the factory inspector felt it could to a great extent reduce the danger. Although the

construction of the fan etc. was to be approved by the Secretary of State the decision was still left to the inspector (E PS). Baker in his report of 1871 protested at the problems that this increased discretion gave an inspector and asked for power to call expert medical aid to give an opinion:

"--- to an inspector, not having had a medical education, such a question (injurious or not) preliminary to any interference by him with a machine seemed absolutely necessary; and secondly for power to call to his aid the opinion of a competent machinist as to the best mode of applying 'other mechanical means' supposing a fan to be unnecessary or too expensive".

5.5.4 SAFETY

In the above quotation Baker appeared to be protesting at the difficulty of the extension of the task into the area firstly of medical causes and secondly of technical solutions. This contrasts with the attitude to involvement with machinery dangers and fencing problems. Here inspectors claimed that their knowledge was as or more valuable than that of experts. They attacked the arbitration system which had caused them not to use their powers of notifying dangerous parts of machinery. Danger was to them;

"--- a question which requires for its solution not the opinion of professional engineers, but the evidence of intelligent observant men who are daily employed in factories ---. The secure fencing of mill gearing is therefore not a matter of opinion for the speculation of men of science,

but is a plain matter of fact, to be proved, like any other matter of fact, by evidence before a tribunal armed with all the powers necessary for eliciting the whole truth". (Joint report October 1856).

They appeared to see themselves in the category of intelligent, observant men for this purpose.

They were also claiming success in helping with technical solutions (E RL).

"--- the advantages they (sub-inspectors) possess --- of examining the same description of machinery in a variety of mills and ascertaining the most simple and effectual means of guarding against a repetition of similar accidents, have enabled them to assist other mill occupiers by practical suggestions of great value, instead of leaving them to discover the best mode of applying guards by expensive experiments". (Saunders report October 1848).

Baker in his October 1866 report advocated greater powers to carry on this work.

"We observe in our various visitations many contrivances --- for the preservation of the lives and limbs of their workpeople ---. In my opinion we might safely be entrusted (with the consent of the inventors) to carry these safeguards elsewhere and with the power to enforce them".

The great controversy which led to the Act of 1856 was in essence an argument over the definition of danger, and resulted in a watering down of the absolute liability to

fence horizontal shafting (see Hutchins and Harrison 1911) for a detailed discussion of the controversy). It threw further burdens on to inspectors to specify dangers since more machinery was transferred to the notice provisions of S.43 of the 1844 Act, a fact which the inspectors regretted, feeling that the law:

"should leave the least possible amount of discretionary power in the hands of the Inspectors to decide what is and what is not compliance with the law". (Joint report April 1856).

The 1867 Act, by S.10 added grindstones to the list of machines covered by Acts, and so added to the criteria to be judged (A/C PS) "likely to cause bodily injury". The fixing was to be regarded in the same way as the fencing of other dangerous parts, i.e. the inspector had to indicate danger, but solutions were only required from the arbitrators, i.e. the task was E RL.

All this time the inspectors maintained their general role as advisors on legislation (Hutchins and Harrison 1911), collectors of evidence on the reaction to it (e.g. Hansard 2.4.1845 v.78, col. 1368-1389) and general advocates and informants on proposed extensions to the coverage of the Acts (e.g. Baker's Report December 1864). All these were problem solving and active roles.

5.5.5 SUMMARY

These were years when the discretionary powers of the inspectorate on balance probably narrowed, with the loss

of the education sphere not being balanced by gains in health and safety. Inspectors voluntarily took on the role of disseminators of information in the safety field. The burden of learning about the machinery, the processes, and the circumstances of a much wider variety of trades was perhaps the greatest increase in the difficulty of the job.

Under the influence of Redgrave and of Baker inspectors were seeing their role less as wielders of the big stick and more as counsellers and friends, i.e. they used their discretion more widely not to prosecute.

"The popular view of an Inspector is doubtless that he is an officer whose chief function is to enforce the law by prosecuting those found to have neglected a strict compliance with its provisions, but this is an erroneous as well as a limited view of his duties. His first and chief duty is to explain what the law requires; to point out how its various provisions can be carried out; to show that real difficulties do not exist; to reconcile apparent incongruities in the phraseology of the Acts, and being advised, when in doubt himself, by the opinion of the legal advisers of the Crown, to administer the law uniformly and indifferently throughout the District confided to his superintendence, and thus to invite the cooperation of the factory occupiers in a labour which may always be to him one of deep interest". (Redgrave's Report December 1869).

To Redgrave the inspectorate was above all a body of administrators (e.g. Report of October 1869) who were there

to see that certified duties should be performed by certified persons. Unlike Mines and Alkali inspectors he considered that their work did not require special knowledge.

So much had the job become specified and less arduous that the Home Secretary was able to say in 1871, with the backing of the 2 inspectors, that a reduction in the size of the inspectorate had been contemplated, and that the transfer of the 1867 Workshops Act to them for enforcement could be accommodated by the addition of only 6 sub-inspectors to the staff (Hansard 3.8.1871 v.208,col. 769-71).

The report of the 1876 Commission on the working of the Factory and Workshop Acts, coming as it did at the end of the period under discussion serves as a useful summary of the official view of the inspectorate's work. It spoke in favour of restricting the role of the inspectorate:

"We believe however that a necessary condition of efficiency will be found in the strict limitation of their duties to the provinces, or rather provisions, already committed to them. Indeed we view with satisfaction the prospect of gradually relieving them from some of their duties, in the educational and sanitary departments".

The members of the Commission also disapproved of the idea of a body of inspectors:

"--- to whom the enforcement of all perilous experiments in legislation might be entrusted in a form that would leave them a large amount of discretion and with the

expectation that they would in general use their powers discreetly".

The main report, and even more so the minority report by the O'Conor Don*, was strongly non-interventionist in tone. This was in strong contrast to the period which follows. The 1870's represented a time when the tide of opinion was beginning to move strongly away from laissez faire attitudes generally (see Taylor 1972 for a discussion of the strength of laissez faire attitudes in various spheres of government). The 1876 report appeared to represent a last strong stand against the tide.

5.6 1878-1901

The 1878 Act consolidated previous legislation and extended it. Two major amending Acts were passed in 1891 and 1895 as well as a new Truck Act (1887) and an Act dealing specifically with Cotton Cloth Factories. The period was one of marked expansion and change.

5.6.1 EMPLOYMENT AND EDUCATION

In employment provisions the trend in the previous period to a proliferation of exceptions and different provisions for different trades was continued, making the task of enforcement a severe test of memory and recognition of different processes etc. but not adding appreciably to the depth of the job. The Act of 1891 added a new detection problem to the inspectors' job by prohibiting

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* "I think the time has come for seriously considering how far the system of inspecting everything and everybody should be pressed --- I believe we should trust much more to the cooperation and active assistance of the working class themselves than to a system of inspecting supervision". (P. cxxviii)

work by women within 4 weeks of childbirth. By the Act of 1889 (Prevention of Cruelty to, and Protection of Children Act) inspectors had to judge whether children were receiving "kind treatment" before granting a certificate for them to take part in public entertainment between the ages of 7 and 10 (A/C PS).

No change took place in the already minimal administrative duties with respect to education.

5.6.2 HEALTH AND SAFETY

It was in the safety and health spheres that major changes took place. New dangers were added to the list of things that the inspectors had to concern themselves with, and several new standard setting tasks were added. (C PS) e.g.

safe by position and construction	(1878 S.5.3)
constantly maintained	(1878 S.5.4)
efficient state	(")
proper repair	(1895 schedule)
so far as is practicable	(1878 S.3)
proper construction	(1878 S.36)
free from effluvia	(1878 S.3)
Sufficient baths and washing facilities, supplies of acidulated drink, proper meal rooms	(1883 Schedule)
reasonably be expected to be aware of infectious disease	(1895 S.6)
good condition	(1895 S.22.2)
sufficient and suitable sanitary conveniences	(1895 S.35)
reasonable temperature	(1895 S.32)

Not only were these dimensions on which standards had to be set; many of them were specifications of means, not ends, which forced inspectors to become more concerned with the technical solutions to the problems (E) than before since it was not possible to judge sufficiency, suitability or efficiency without. The solutions with which inspectors had to become concerned were as follows:

guarding of machines, hoists, teagles, lifts, millgearing, flywheels, vats etc.,
fixing of grindstones,
provision of fire escapes,
positioning of self acting mules,
repair or alteration of dangerous machines,
ventilation for removal of dust etc. and control of temperature,
prevention of wetting in wet spinning,
supply of washing, eating and drinking facilites,
supply of protective clothing,
condition and drainage of floors,
means of controlling temperature,
supply of sanitary conveniences.

In the 1895 Act can perhaps be seen the start of involvement in administrative solutions in health and safety (F) as well as the technical ones (E). The Act in specifying detailed rules for grindstones in tenement factories called for instantaneous communication between each grinding room and the engine room (Schedule S.25,3). It could be argued also that the provisions covering maintenance and use of guards etc. (see above) would have forced inspectors to look at the administrative means of

achieving these ends (F), as well as the ends themselves (i.e. a state of good repair (E)). I could find no evidence that this did in fact happen. Finally the powers to oversee fire certificates and means of escape (S.10) in default of local authorities brought the factory inspector into contact with decisions where not only hardware but procedures were relevant (F).

Prior to 1878 there had been no need for the inspectors to use any measuring instruments beyond a clock, and perhaps a tape measure to measure the height of children. In the years up to 1901 the requirement for measurement to detect contraventions increased with the addition of temperature and air flow for ventilation (1889 S.9), humidity (1889 S.5) window area (1878 S.35) and space (order under 1878 S.33 dated 22.12.1892). The measurement provisions were particularly prominent in the 1889 Cotton Cloth Factories Act, and it is significant that a specialist inspector was allocated to enforce this Act rather than it being given to the general inspectors.

It is true that there was some simplification of sections; e.g. the criterion of danger was altered to cover parts near which all those employed were liable to pass, not just children and young persons (1878 S.5, 1) and in 1891 (S.6) the fencing duty was made absolute, thus removing this criterion problem*; overcrowding was defined by the 1895 Act, so reducing a task at level C PS to one at level C RL.

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* The courts, however, reintroduced criteria in the assessment of that absolute duty, e.g. foreseeability (see Redgrave's Factory Acts for discussion: latest edition (Fife and Machin 1976) Ss 12-16 of 1961 Act).

The greatest changes came from three sources, the reciprocal duties with local authorities, the provisions of S.8 of the 1891 Act which provided for special rules for dangerous trades, the provisions of Ss 2, 4 & 5 of the 1895 Act in respect of action in the face of danger to health or safety.

(A) Local authorities had been given powers to enforce the Bakehouses Act of 1863 and the Workshops Act of 1867. Dissatisfaction with their performance led to enforcement being largely transferred to the Factory Inspectorate in 1871. Throughout the period of 1878 - 1901 the dividing line between the two authorities in the health, sanitary and nuisance sphere was being adjusted. The 1878 Act (S.4) had given factory inspectors the duty to give notice of contraventions under Public Health Acts to the local authorities. The 1891 Act (S.2) gave power to prosecute in default of the local authorities. It could be argued that the knowledge requirements to give notice of contravention and to prosecute for it are identical, but it is likely that a greater depth and precision of knowledge and understanding was required for the latter, since there was no intermediary to filter out doubtful prosecutions before they reached the courts, (i.e. knowledge was required at PS not RL level). A similar situation was established with respect to fire certificates and fire escapes by the Act of 1895 (S.10) whereby inspectors had to report defects to local authorities.

In other respects the transfers between the two authorities (e.g. 1891 Ss 3, 84) were a matter of balancing the work load of the factory inspectors against considerations of what local authorities could be trusted to do.

(B) Rules for dangerous trades were set up under S.8 of the 1891 Act. They replaced the arbitration system of the 1844 Act, which inspectors had not liked or used, with a system whereby the Secretary of State could designate a machine or process as dangerous and then authorise the chief inspector to propose special rules to meet the necessities of the case, which were open to objection and modification for a fixed period before being promulgated. This vesting of power to produce special rules in the upper echelons of the inspectorate, either specifically as here, or by implication, in giving the power to the Secretary of State who would act on the advice of the chief inspector among others, was a feature of the legislation from the end of the 19th Century onwards. The implications for the training of inspectors is enormous, in that it is the first statutory admission, since the repeal of the inspectors powers to make orders and regulations in 1844* that the inspectors were there to make as well as to enforce the law. (PS not RL).

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* S.5 of the 1864 Act had allowed manufacturers to make their own rules to prevent their workers bringing them into breach of S.4 of that Act. Such rules had to be approved by the inspector on behalf of the Secretary of State.

The rules were very different from those drawn up under the 1833 Act which had been concerned almost entirely with measures to ease the burden of detection of hazards (A) by specifying registers, certificates etc. The 1891 Act rules were concerned with setting standards (C) and with technical solutions (E) also.

Danger was to be defined by the Secretary of State, but it is clear from the heavy involvement of inspectors in the investigative committees set up to look at the trades and draw up the rules, that the inspectorate was looked to to provide the knowledge to make the decisions (see Annual Reports 1892 - 1897 particularly). A further recognition of the ability of the inspectors to do this work (A/C PS) was given by S.8 of the 1895 Act which specifically stated the "dangerous parts" for the purposes of the provisions governing cleaning of machinery were to be those which the inspector stated to be dangerous.

The content of the special rules is summarised above (p. 71). Clearly the drawing up of such rules and the assessment of the suitability, etc. of the provisions led the inspectors deeply into considerations of the technical solutions to the mainly health problems covered by the rules (E). This was particularly so where provisions had to be "approved" by the Chief Inspector. The majority of provisions were for hardware, (E) but there was some straying into the areas of administrative or organisational

solutions (F) in the concern with medical examinations, supervision, cleaning of washing facilities and protective clothing and insistence that occupiers had to see that the facilities were used or worn. Use was made of the traditional remedy of requiring registers to be kept of baths etc. to define compliance, but inspectors undoubtedly had an increased problem solving and detection task.

(C) Powers of courts to order work to be done had been introduced first in 1864 (S.4) for the limited purpose of specifying ventilation. The powers were greatly extended by Ss 2, 4 and 5 of the 1895 Act. These contained provisions to prohibit work in places, processes and machines which were dangerous or injurious to health, life or limb, and to provide for powers to require work to be done. The implications for the inspectors' job were a great increase in A PS and C PS, particularly to define imminent danger. The decisions regarding technical solution (E) were specifically allocated to the court (S. 2.1), but there was no return to the system of arbitration by experts in machinery construction which had existed prior to 1891. The inference that can be drawn is that it was to be the inspector who specified, subject to the employer's dispute and the court's decision, what works were needed. These provisions and their successors in later Acts were not widely used by inspectors because of the cumbersome machinery for bringing them into action. However, the sections represented commitments to knowledge and ability in the area of safety and

health which went an important step further than previous provisions.

5.6.3 TRUCK AND PARTICULARS

The years 1878 - 1901 saw the extension of the inspectorate's work into an entirely new area, concern over fair wages and payment systems. The Truck Act of 1887 made factory inspectors responsible for enforcing it, the Hosiery Manufacturers (Wages) Act 1874 and the Truck Act of 1831. These and the later Act of 1896 presented inspectors with a series of new criteria to define (C PS);

value of goods and deductions	1831 S.21 1887 S.10
fair and reasonable fines	1896 S.1, 3
value of damage	1896 S.2, 3
likely to cause loss	
ommissions or acts	1896 S.1, 3

These provisions must have involved a working knowledge of the local price of goods available in the various parts of the country and a decision as to how the true value should be arrived at given the price variations by location and by time which were inevitable. In addition the allowable and disallowed deductions formed a comparatively complex list with many nice legal distinctions involved in deciding whether any given deduction fell within or without the law. The problems of detection involved the same skills as required by the employment provisions.

The particulars section (S.24) of the 1891 Act went further. As well as criteria, such as sufficiency of

information and "trade secrets" (C PS),it required the inspectors to know what particulars were necessary to calculate the piece rate wages and how those should be provided (E/F). The Act of 1895 in S.40 elaborated on and specified what was sufficient information. The task was largely reduced to checking the placards and written notices of particulars and the working of automatic indicators against the actual work or indicator provided, in order to assess their adequacy and to discover mismatches. However it was still left to the inspector to judge the sufficiency of the information and whether all the factors which affected wages had been notified to the workers (A/C PS). This involved having a deep knowledge of how wages were calculated in factories, and what methods could be used for fraudulently falsifying the information or defeating the systems.

The Act of 1895 extended the particulars provisions to all textile factories, and provision was made for their extension to other trades on the recommendation of inspectors (S.40-6). This firstly placed upon inspectors a very broad obligation to discover trades in which the section would be applicable (A PS) and secondly, when the section was extended to those trades, to become familiar with the intricacies of the piece work payment system within those trades.

It is perhaps significant that from the first, the particulars sections were administered by specialist inspectors.

5.6.4 SUMMARY

The period from 1878 - 1901 can be seen to be one of major change in the difficulty of the inspector's task. In safety and health and in dealing with wages and truck he was called upon to specify many more standards for compliance (C PS). The letters from the chief inspector to inspectors dealt increasingly with the requirements which should be asked for under the sections of the Act, in order to maintain a uniform standard throughout the country (e.g. on meal-times (November 1887), registers (January 1889), particulars (November 1889), shuttle guards (September 1892) (Reduction of PS to RL for the serving inspector). At the same time inspectors were being drawn more and more into the problems of technical and even administrative solutions to the hazards they dealt with (E/F). The reports of the chief inspector for the 1880's were often full of illustrations of guards (e.g. Annual Reports for 1884, 1886). The following quote preceded a substantial section of the 1886 report:

"When pointing out parts of machinery which the Inspectors are of opinion should be fenced, they are frequently met with the request to point out the fencing they would recommend. This is not a question easily answered. Of course, suggestions are excellent in their way, but in order to induce manufacturers to adopt a suggestion there must be proof of a successful application of the plan proposed, and especially it must be shown that there will not be an interference with the action of the machinery. Again it is impossible, considering the complication of machinery, its position in a factory, the necessity of handling various parts, to lay down any particular methods

and plans that should be adopted, and I have thought it would conduce very much to cause the question of fencing to be more thoroughly investigated if it were shown what is being done in many factories, with the view of protecting the hands from injury".

This is E RL in full swing, a movement which culminated in the issue by the inspectorate of an illustrated book of guard designs at the end of 1900. The letters from the chief inspector to the inspectors indicated the extent of their involvement not only in this process (e.g. letter for August 1886) but in detection of new hazards (A PS) (e.g. letters for January 1895 asking for information on dangerous or unhealthy trades not covered by special rules, and for November 1894 and December 1895 asking for information on cleaning accidents and accidents at unfenced vats) and in formulation of rules (e.g. letters of October 1892 and October 1893 asking for opinions on proposed rules). Mr. Stuart-Wortley M.P. called the factory inspectors "the eyes and ears whereby the Home Secretary learned of the real condition of the working classes all over the country" (Supply debate Hansard 17.8.1894 v.28, col. 1434). In the period in question the inspectors' views were being sought on issues as widely separate as the setting up of creches at factories, the promotion of first aid classes, and the economic effects of legislation on female labour (Chief Inspectors letters of July 1894 and June 1901). (See also Squire 1927).

This was also the period which saw the appointment of the specialist inspectors, for particulars and for Cotton Cloth factories, and the first appointment of women

5.7 1901-1972

This period covers the time from the consolidation of the nineteenth century legislation in the Act of 1901, through to the report of the Robens Committee on Safety and Health at Work which was the precursor of the 1974 Act. The major innovation of the period was the mass of regulations made under S.79 of the 1901 Act (replacing the rules made under S.8 of the 1891 Act) and the spread of concern with solutions.

5.7.1 EMPLOYMENT AND EDUCATION

In the field of employment provisions there were few changes in the depth of knowledge and intervention of the inspectors. The Hours of Employment Act of 1936 added a few more standards which the inspector had to specify and judge on, to grant exemptions from provisions; (A/C PS) force majeure, responsible position of management, actual or threatened accident, (cf 1833 Act S.4), urgent work to machinery and unforeseen absence of a man on the next shift.

In the 1937 Act further exemptions were permitted dependent upon such reasons as follows (A/C PS): dependent upon young persons, work seriously prejudiced, serious detriment to industry, temporary emergency, convenience of persons employed, desirable in public interest.

The involvement of inspectors in education provisions was brought to an end by the abolition of the half time system by the Education Act of 1918. They had only to enforce minimum working age regulations from then on.

5.7.2 PARTICULARS AND TRUCK

The Particulars and Truck legislation did not change greatly in its requirements for depth of intervention. The Checkweighing in Various Industries Act 1919 specified in detail the solutions to be provided. It did however draw the inspector into consideration of an administrative solution (the method of appointment of checkweighers) (though only in terms of assessing compliance (F RL), not of specifying the method to be used (F PS). The whole area became less important, as breaches of the provisions and prosecutions became less frequent (see Table 7 Chapter 4).

5.7.3 HEALTH AND SAFETY

In the field of safety and health this period saw the greater involvement of inspectors directly in accident investigation. The certifying surgeons were finally excluded from their investigation role in 1916, although they continued to investigate industrial diseases and exposure to gas, fumes and noxious substances. Inspectors from then on did all of the accident investigation. Powers under the 1901 Act first required notification of dangerous occurrences. Soon after provisions began to appear in regulations (e.g. Wool, Goat Hair and Camel Hair Regulations 1905) to take samples of substances for analysis to determine if they were dangerous. These powers to take samples were made general in the 1937 Act. Statute thus recognised an extension of the inspectors' role in detecting problems (A PS).

Chapter 4 above has chronicled the great expansion from 1901 onwards in the number, complexity and coverage of health and safety provisions.

The expansion of coverage of the Acts and regulations brought with it standards to be specified in new areas (see Chapter 4) e.g.:

lifting of weights,

lighting,

passages, gangways and other means of access,

seating.

Many of these provisions appeared for the first time in specific regulations and weremade general by the 1937 Act.

In all these cases inspectors were being asked to specify the standard of safety which was to be attained (the end or objective) (A/C PS).

The 1937 Act also made general the duties of employees, adding criteria of "wilful interference, misuse and wilfully or withoutreasonable cause endangering themselves or others" to the inspectors' already long list (A/C PS). The changes in depth of intervention were also striking. The 1901 Act added to the list of dangerous machinery to be inspected steam boilers (S.11). The detailed examination of the boilers was given not to inspectors but to "thoroughly competent persons" who had to enter an examination report in the general register. This can be seen as an attempt to limit both the time commitment and the knowledge and skill requirement of inspectors. The inspector still needed some knowledge and skill however, since he had to recognise and check for provision of the appropriate guages (steam and water) and safety valves (E) and more importantly to recognise if the examiner was thoroughly competent and if the examination was adequate. These

last two are involvements in administrative solutions (F). Few changes were made to health provisions by the 1901 Act, apart from transferring some provisions from special rules to general statute. Indeed there was minor simplification of the ventilation provisions in cotton cloth factories by the specification of the standard to be achieved as a percentage of CO_2 in air. This reduced a level (A/C PS) task to a level (A/C RL) task.

It was in the regulations under S.79 of the 1901 Act (continued by the provisions of the 1937 and 1961 Acts) and the Welfare Orders under the Police, Factories etc. Act 1916 that the major increases in depth of involvement came. These regulations specified the technical solutions to be used in achieving health, safety and welfare in the processes or trades that they covered (E). In doing so they almost invariably added to the number of standards which the inspectors had to judge for adequacy, suitability etc. (A/C PS). This placed a greater premium on the inspector's ability to propose technical solutions either of his own invention (E PS) or drawn from another source (E RL).

5.7.3.1 ORGANISATIONAL SOLUTIONS

The Welfare Orders, particularly, specified administrative provisions (F) for supervision of facilities, qualified, trained and responsible persons, especially in first aid and ambulance rooms, and medical examinations and inspections. Regulations, much more than the special rules under the 1891 Act, came to specify work methods

and the need to ensure the use and maintenance of guards, protective clothing etc (F). The specification of skilled competent or authorised persons as a strategy became more widely used, e.g. in:

Wool, Goat Hair and Camel Hair Regs. 1905,
Electricity Regs. 1908,
Celluloid Regs. 1921,
Woodworking Machinery Regs. 1922*,
Chemical Works Regs. 1922*,
Docks Regs. 1925 and 1934,
Grinding of Metals Regs. 1925,
Blasting (Castings) Regs. 1929,
Kiers Regs. 1938,
Unfenced Machinery Regs. 1938*,
Patent Fuel Manufacture Regs. 1946,
Pottery Regs. 1950,
Testing of Aircraft Engines Regs. 1952,
Work in Compressed Air Regs. 1958,
Shipbuilding and Ship-repairing Regs. 1960,
Construction (General Provisions) & Lifting Operations) Regs. 1961,
Power Press Regs. 1965*,
Ionising Radiations Regs. 1968 and 1969,
Abrasive Wheels Regs. 1970*.

In later regulations the training to be given (means) rather than the competence to be attained (end) was specified (asterisked regs. above). This can be seen as an attempt to reduce a task at F PS to one at F RL.

Training provisions were also included in the 1937 (and 1961) Acts in respect of Self Acting Machines and work of young persons at machines, and competence provisions in respect of hoists, lifts, lifting gear, air receivers or gasholders which had to be examined, or confined spaces which had to be entered (this was in addition to the provisions of the 1901 Act in regard to inspection of steam boilers).

The training provisions mentioned above were ones specifically for people exposed to danger. One stage further into organisational solutions was the requirement for the provision and training of supervisors. The inspectorate became involved in this question as a result of the Welfare Orders under the 1916 Act but limited its involvement by subcontracting the assessment and standard setting for welfare supervisors to universities who were encouraged to put on courses (Chief Inspector's report for 1918) (i.e. reducing F PS to F RL).

The special rules for the pottery trade issued in 1913 specified (S.27) the appointment of "a person or persons --- who shall see to the observance throughout the factory of the regulations, and whose duty it shall be to carry out inspection of the working of all the regulations in the departments for which they are individually responsible".

The Draft Safety in Factories Order of 1927 (made under S.29 of the Workmen's Compensation Act 1923) called for schemes of safety organisation to be submitted to the Chief Inspector for approval. The purpose as set out in the Annual Report for 1927 was as follows:

"It was proposed to require the employment of a competent safety supervisor, responsible directly to the occupier and charged with certain duties, including the constant supervision of plant, the training of new workers, investigation of accidents, cooperation with management and operatives in organisation of safety, first aid work and the maintenace of first aid and ambulance arrangements".

The order was never made, because of a voluntary response on the part of the industries covered, but considerable activity was prompted on the part of inspectors, and the chief inspector's annual reports contained reference to the subject of safety committees and the progress of the order from then until the outbreak of World War II.

The reports were also full of discussion of the Safety First movement and safety organisation from World War I onwards (see Hopkinson 1976 for a detailed discussion). The tone of the comments was at first informative (e.g. approving description of the work of safety committees

and safety supervisors in Annual Report for 1913), later it became more exhortatory (e.g. Annual Report for 1920). The attitude of the inspectors of the period can be summed up by the following quotation from the report of 1922 by Sir Gerald Bellhouse:

"what they (inspectors) can do, and what they are doing is to preach the gospal, to bring to the notice of employers the good results that have followed from efficient organisation and to encourage them to take up the question in their own works".

In the inspectorate's monthly circulars instructions were issued to collect information about and to advise and urge management initiative on workers' involvement, systematic supervision and maintenance, organisation of First Aid, suggestion schemes and joint conferences of workers and managers (July 1928) (also noted by the 1930 Departmental Committee in its report).

Bellhouse was an enthusiast for the Safety First Movement and safety supervisors. His successor Sir Duncan Wilson was not so. His report of 1931 sounded a somewhat jaundiced note:

"Inspectors endeavour to instil new vigour and activity into the work of these Committees on every available opportunity, but the scope of an inspectors activities in this direction is

inevitably limited".

His report of 1934 was openly hostile to safety officers when he castigated some firms for changing from a safety committee to a safety officer:

as a result "workers think their employers consider safety conditions as matters for the management to deal with alone, and that any suggestions from the workers might be looked on as unwarranted interference".

The 1937 Act retained the option for the Secretary of State to make regulations to specify safety supervision where the number or nature of accidents warranted it. The regulations were however never made. However the Shipbuilding and Ship-repairing Regulations 1960 and the Construction (General Provisions) Regulations 1966 did specify that safety supervisors should be appointed.

Abortive attempts were made in 1954 and 1970 - 1972 to pass statutory provisions for worker's, safety inspectors and representatives*.

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* Safety in Employment (Inspection and Safety Organisation) Bill (1954).
Employed Persons (Health and Safety) Bill (1970).
Employed Persons Safety Bill (1971) & (1972).

The developments discussed earlier in statute and regulations show a slow but steady drift into a concern with organisational solutions (F) as well as technical solutions (E). The evidence presented from other sources shows that the shift was in practice greater than the statutes would indicate.

5.7.3.2 OTHER DEVELOPMENTS

This period was a time of the flowering of the inspectorate's advisory and communication role in health and safety.

The inspectorate's monthly circulars commencing in 1901 were full of information on new dangers (A PS/ RL) and on the standards to be asked for on particular machines and processes (C PS . C RL). They also chronicled the increasing instrumentation used by the inspectors from the issue of tape measures in 1894, to anemometers in 1900, to lightmeters in 1940 and finally to a field kit of instruments in the 1960's. But above all the circulars were full of details of technical solutions to guarding and process problems (E RL). A book of Factory Department Memoranda produced in 1915 to collect together information issued by the department contained not only the detailed provisions for each type of machine covered by the trade agreements, but also suggestions for work methods and lists of makers of approved guards. The report of the 1911 Committee on Accidents commended this work.

The circulars continued their calls (started before 1901) for information on problems (A PS) but the subjects became somewhat broader, e.g. psychological aspects of safety January 1925, reduction of noise on machines May 1929, time study May 1935, sickness absence November 1944. Many of these requests were promoted by the Inspectorate's contact with the Industrial Health Research Board and the National Institute of Industrial Psychology (see Hopkinson 1976 for a detailed discussion of this involvement). The inspectors' propaganda role (E/F RL) was emphasised in several circulars. (e.g. August 1931 on guards, February 1932 on safety organisation, November 1940 on safety propaganda), and in the approving note in the Annual Report for 1929 which notes the increasing number of lectures being given on guarding, illustrated by lantern slides.

Consistently the Annual Reports stressed the diagnostic (A PS) advisory and problem solving (E/F PS) sides of the inspectors job and his discretion over prosecution (D PS) as the following quotations show:

"H.M. Inspectors have three objectives constantly before them, i.e. the general surveillance of all the works on their lists; the discovery of new works and industries; the investigation and elimination of all unfavourable conditions of employment and risks or injustice to workers

in their several avocations. The latter (sic) item has become more intricate and pressing under the special rules to which so many industries are now subject". (Superintending Inspector J. Redgrave in Annual Report for 1904).

"The absence of a legally defined standard on many points causes action to depend largely on the suggestions or instructions issued by the Inspectors at their visits". (Superintending Inspector J. Rogers Annual Report 1914).

"the main functions of the Inspector today is instruction (on matters within the law) and advice (on matters outside the law) rather than compulsion" (Annual Report for 1932).

"while inspectors can do much, as their work in the past has shown, they can only, at best be guides and directors as to the best methods of protection and accident prevention, apart from their legal duties under the Factory Acts". (Annual Report for 1941).

"while Inspectors must continue their police duties without which the general standard throughout the country will fall, the technical and advice side of their work will become more and more important". (Annual Report for 1944).

"I am serving notice on them (management) that the Inspectorate will be concentrating more and more on their deficiencies in the areas of safety organisation, training and supervision and less on the symptoms of failure. In the past we may have too often instituted legal proceedings for example for unfenced machinery or for deficiencies in scaffolding, yet failed to bring home to a company the need to set up an organisation to prevent lapses which result in breaches of the law". (Annual Report for 1972).

Particularly in the war years the inspectorate's advisory role was stressed, in their work for welfare and the substitution of women for men in industry in the First World War and in their work on blackout and air raid precautions, personnel management, training and industrial relations in the Second World War, (see Annual Reports and monthly circulars for those years and the debate on Factories Acts (Administration) Hansard 22nd July 1942 v.382, col 50-126.)
In particular the inspectorate had two specialist branches to deal with these topics, the canteen advisory service (1943-1957) and the personnel management branch (1945-1949).

The following extracts from the Chief Inspector's Instructions as to the job of an inspector confirm the above comments. They were current from 1945 and replacing instructions dating from 1878 which did not contain the paragraph:

"While the chief duty of an inspector is to enforce the law, employers, employees and their associations now look to him for advice and help not only as to the best method of compliance but also as to the means of securing the best possible conditions. Inspectors should encourage such an attitude and should take every suitable opportunity of placing at the disposal of employers or workers their knowledge and experience of methods and precautions promoting safety health and welfare".

(inspectors) "may do good service by softening prejudice and promoting good feeling between employers and employees".

"an inspector should watch for and record --- any points of interest bearing on the objects of the Acts and particularly any evidence of danger to the health and safety of workers engaged in any process", (and should) "take note for the information of the Department and of occupiers of effective appliances or arrangements for promoting the safety, health or welfare of persons employed".

Of the writers on factory inspection and factory law Mess (1926) noted with approval both the increasing emphasis on inspectors as advisers and disseminators of information (E/F PS) and the trend towards more objective and detailed standards for them to apply (C RL)(also noted

approvingly by Hutchins and Harrison 1911). Andrews (1937) noted the importance of discussing the technical solutions (E) to problems with occupiers "while carefully refraining from recommending any particular guard". Blelloch (1938) noted without comment the emphasis on advisory work rather than enforcement. Djang (1942) who was fulsome in his praise of the Inspectorate applauded their policy of encouragement of joint consultation and self inspection, and the value of the technical expertise and advice of the inspectors.

Not all the voices were wholly in favour of the development towards concern with solutions and with advice. Ramsey Macdonald both in the 1911 Committee on Accidents of which he was a member, and in parliament stressed the need for enforcement preferably by practical men who knew factories and their machinery (e.g. Hansard 18.7.1907 v.17, col.932-985). Williams (1960) also questioned the views set out above. He stated (p.143) "the only consistent factor (in policy since 1911) has been that more has been demanded of inspectors than they could reasonably have been expected to undertake. It is clear that a great reliance has always been placed upon efforts to educate and persuade employers and employees into better safety habits".

Williams appeared not to be entirely happy with this reliance on education and persuasion and

leant towards greater use of enforcement.

Hartley (1972) although dealing mainly with the Schools Inspectorate produced a general call for government inspectorates to inspect and not just to advise. He classed the Factory Inspectorate as having only a "formal" inspection function which he defined as "a process to be gone through in due order so as either to claim that it has been done, or as a means of ensuring that the inspector and inspected do meet". No evidence was adduced for the classification of the Factory Inspectorate into this category.

5.7.4 SUMMARY

The period 1901 to 1972 saw the flowering of the inspectorate into a body concerned far more with solutions than it had been, and with advice as much as with enforcement. The solutions were predominantly technical ones, but increasingly the inspectorate was concerning itself with the questions of competence, training, supervision, organisation and industrial relations.

5.8 NEW APPROACHES 1972-1974

5.8.1 ROBENS COMMITTEE

1972 saw the publication of the report of the Robens Committee on Safety and Health at Work. This document, the evidence upon which it was based and the Health and Safety at Work etc. Act 1974 which was based upon it, represent a focus for consideration of the inspectorate's present and future job.

The evidence given to the Robens Committee illustrated two opposing views of the work of the inspectorate. The TUC and a solicitor, W. H. Thompson, who had been involved with many trades union cases for damages over industrial accidents, put the case for more prosecutions, and the use of the Inspectorate as a law enforcement body.

"In theory the Factories Act is enforced by the Factory Inspectorate. In practice the Act is not enforced at all". (W. H. Thompson. evidence).

Mr. Thompson then went on to suggest that the law on industrial safety might be enforced by the police, as the road safety law was. His view represented the extreme in this direction, but the TUC also stressed the importance of "a vigorous prosecution policy".

At the other end of the spectrum the evidence of the CBI contained the following:

"the CBI believes that the inspectorates should fulfil a greater advisory role operating more closely with employers organisations. This holds certain implications for the training of inspectors. Today the impression is gained that the enforcement function is given undue prominence in an inspector's initial training ---. The CBI would like to see greater evidence of a more systematic training of new inspectors as advisers rather than as policemen".

This view was backed up with suggestions that inspectors needed industrial experience, a view supported by other

employer's organisations (e.g. Chemical Industries Association, Soap, Candle and Edible Fat Trades Employers' Federation) and by the Institution of Industrial Safety Officers. In addition there was comment about the need for a technician grade of inspector.

"It seems reasonable to provide a "second line" Inspectorate which would relieve HMFI proper of such duties as checking the number of toilets, the frequency of painting walls and so on. It does not need a graduate to deal with matters of this kind". (Evidence of British Chemical Industry Safety Council of the Chemical Industries Association).

The Department of Employment in its evidence spoke of the objective of the inspectorate being:

"to enlist the cooperation of both sides of industry in more self-inspection, with the Factory Inspectorate in the background advising, encouraging and verifying results".

and that:

"the Inspectorate might do more to promote effective managerial organisation for health and safety within the individual establishment".

In answer to the question: "is the right balance struck between strict enforcement, persuasion and advice?" the Department's evidence pointed to the need for prosecution of "the careless, the dilatory, and the ineffective", but came down against too much use of police powers:

"If the Inspectorate were to attempt rigid enforcement of

of everything that could be driven through the courts, industry might well cease to turn to the Inspectorate for advice and guidance, and the standards set over the years in the great majority of work places might suffer".

These views clearly accorded more closely with those of the CBI andits fellow employers bodies than with those of the TUC.

The Committee itself in its report made several comments about the role of the Inspectorate. They acknowledged the wide range of activities undertaken by inspectors:

"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". (p.61).

In discussing the future role of the inspectorate their views were clearly strongly influenced by their overriding goal of self-regulation by industry:

"This attitude (apathy) 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". (p.7).

In dealing with the arguments for rigorous enforcement the Committee stated "This is an argument which seems to us misconceived. Even if it were feasible, it would be generally inappropriate and undesirable" (p.64).

The Committee considered that the fundamental objectives of the Inspectorate had never been adequately defined. They thought that this was bad, and that inspectors should know clearly what was expected of them. The reports contribution to this clarification was as follows:

"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 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". (p.65).

The whole tenor of the report was that inspectors should be management consultants and advisers. Parallels were drawn with the Department of Employment's Advisory Conciliation and Arbitration Service which advises on on industrial relations.

In terms of the stages of problem solution being used in this discussion the Committee are clearly recommending that the prime focus of the inspector should be advice (PS) at stages E & F, the production of technical and organisational solutions, with far more emphasis than in the past on the latter.

5.8.2 ILO REPORTS

The Robens committee report was very much in line with the International Labour Office report of a conference of senior health and safety officials held in 1967 (ILO 1969). The report commented on the great extension of the job of an inspector and the change in function from control and verification to advice. Its conclusion was that detailed regulation was impossible because of the rapid changes in technology and that more should be left to the discretion of the inspector. While the prime task was to secure observance with minimum standards the focus should be to seek collaboration and offer assistance to reach higher levels. The report used such phrases as; to gain confidence; to convince employers of the benefits of safety and health; to awaken his sense of responsibility. Stress was also laid on the diagnostic role of inspectors to research into dangerous conditions, and also to advise on the imperfections of legislation. The emphasis here, as with Robens, is on

research on detection (A PS) and on discretion and advice over solutions (E/F PS).

5.9 1974 ACT

The Health and Safety at Work etc. Act 1974 which followed the Robens Committee report implemented the recommendation that there should be more concern with solutions. The objectives set out in Section 1 of the Act were broad. They were equivalent to the preambles of previous acts in setting out to secure the health, safety and welfare of persons at work, but added the broader objectives of protecting the public from the effects of work activities, including emissions of noxious or offensive substances (previously covered by other enactments) and controlling the keeping or use of explosive, highly flammable or otherwise dangerous substances.

With such broad objectives as this and the introduction of a large number of "new entrant" occupations the work of the inspectorate has clearly been considerably extended in breadth. Not all of the work covered by the 1974 Act has fallen to the Factory Inspectorate. The Act also brought about the amalgamation of other inspectorates into the new Health and Safety Executive, but as yet there has been comparatively little reallocation of duties between the branches of H.S.E. The bulk of the "new entrants" have however fallen to the Factory Inspectorate at present.

It is in depth of job that the main changes in the inspector's job have been made. The provisions of the 1974 Act have grafted on to all of the involvement of the Inspectorate under the 1961 Act in standard setting (C) and in technical solutions (E) a much greater concern with organisational solutions (F) in the

following areas:

systems of work (S.2.2a)

use, handling, storage and transport (S.2.2b)

information, instruction, supervision and training (S.2.2c)

policy and the organisation and arrangements for carrying it out (S.2.3)

methods of informing employers (S.2.3)

employee safety representatives, their appointment, training, functions and method of operation (Ss.2.4, 2.6, 2.7 and Safety Representatives and Safety Committee Regs. 1977)

design, testing, research, erection, installation and examination of articles and substances and the provision of information about their dangers. (S.6)

cooperation, acts, omissions, interference and misuse of things provided for health, safety and welfare on the part of employers (Ss 7 & 8).

The duties imposed on employers and employees by the Act have usually been qualified by the words "so far as is reasonably practicable", and sometimes by words such as "so far as is necessary" (see Appendix 10 for detailed analysis).

The effect of these provisions is to require the inspectors to set standards (C PS) in all of these areas, many of which have not been of any concern to them in the past, and, in the light of the recommendations of the Robens Committee, to offer advice on means of compliance with these standards (F PS).

The 1974 Act also extended and made more explicit the role and powers of the inspectorates (embodied in HSE) to collect and disseminate research and information (a role first explicitly

mentioned in statute in the 1959 Act) (A PS).

The powers of the inspectors were also extended by the provisions of Ss.21 and 22. These sections gave them the power to issue on their own authority, subject to appeal to an industrial tribunal, notices prohibiting work where risk of serious personal injury existed, and ordering situations where contraventions of law existed to be remedied within a specific time. These prohibitions and improvement notices have to contain details of the contravention or risk and the reasons why the inspector considers them to exist; they may (by S.23) include directions as to the measures to be taken to remedy the situation. These sections have given back to individual inspectors powers they had from 1844 to 1891 to specify danger on their own initiative. (A PS), and have added to them much greater powers and pressures to specify solutions (E/F RL/PS).

S.28.8 of the Act placed on inspectors the duty to keep persons employed adequately informed about matters affecting their health, safety and welfare and about the inspectors' findings and proposed actions as a result of his inspection. This emphasised another theme of the Robens Committee's conclusions, the importance of employee representatives and the need for them to be better informed about risks and procedures for controlling those risks.

The provisions of the 1974 Act have provided the most extreme swing of the pendulum from detailed provision to broad principle so far in the history of factory legislation. From the point of view of the training needs of inspectors they have breached any previous limits on the potentially useful knowledge that an inspector might be given. More or less the whole corpus of knowledge on how industry, in the widest sense, organises itself

and produces goods and services in the primary, secondary and teritiary sectors of industry becomes relevant, as does the total technology which it calls upon to achieve its ends. On the face of it, without this knowledge it is not possible to solve and give advice on the virtually unlimited range of problems of where danger may arise and need to be controlled. This is a clearly absurd task for one inspector to encompass, and if statute or policy do not limit it, then practice will.

5.10 INTERVIEW EVIDENCE (See Appendix 2 for Tables)

Many of the questions in the interview schedule bear on the problems produced by the current depth of the job. The responses to the question about overall objectives (Table 1) can be classified on the dimensions under consideration. 45 responses broadly emphasise the diagnostic, standard setting and compliance roles of the inspectorate (A-C), 51 emphasise the change, and solution roles (D-F). It is not possible to classify the responses on the level of functioning dimension, since, as indicated above, even enforcement of the law requires problem solving, because of the unspecified standards which are incorporated into it.

The responses to the question asking about changes in the job (Table 3) show that almost all the perceived changes have been ones which have increased the depth of the job; e.g. deeper knowledge of industry needed (8), more emphasis on management, organisation, work force involvement (30), more advice at planning stage (14), more discretion (10). Only two inspectors felt there was less discretion than when they jointed, but this was because they felt that Inspectorate Headquarters constrained them more, not that the law or general policy did. (They seemed to be pointing to the phenomenon of increased bureaucratisation in

the inspectorate).

The job difficulties quoted (Table 4) can again be classified according to the dimensions under discussion. 30 responses indicated problems with stages A-C directly, particularly in remembering and interpreting variable and complex standards. 37 responses indicated problems with stages D-F, particularly with deciding on priorities and using discretion in deciding action.

Most of the knowledge and skill requirements (Table 6) were ones which could be related to detecting hazards and knowing standards. It is interesting to note that 13 people specifically asked for knowledge of solutions to hazards, but that 3 specifically and strongly indicated that this should not be part of the inspectors' knowledge (the only specific negative point made in answer to this question).

The interview data tends to support the conclusion from the historical analysis that the depth of the job has increased and now presents difficulties for individual inspectors, particularly in the depth of knowledge required in a wide range of areas and in using discretion to decide upon priorities for action.

5.11 GENERAL DISCUSSION AND CONCLUSIONS

The discussion in this chapter has shown that there has been a steady trend in the statutes, which the inspectors have had to administer, to draw them into involvement in later and later stages of the solution to health and safety (C→E→F). This can be seen in the summary Table 9. Statutory involvement has been preceeded by voluntary involvement as can be seen from the annual reports of the inspectors and chief inspectors.

TABLE 9

NUMBER OF SECTIONS IN THE PRINCIPAL ACTS REQUIRING FUNCTIONING AT DIFFERENT STAGES AT A PROBLEM SOLVING LEVEL

	C Standards		E Technical Solution		F Organisational Solution		Total non-Admin. Section
	No.	%	No.	%	No.	%	
1833	16	72	1	5	3	13	22
1844	10	32	3	10	2	6	31
1876	30	51	9	15	1	2	59
1901	44	41	26	24	3	3	107
1937	49	45	42	39	11	10	109
1961	83	45	55	30	18	10	185
Regs.at							
1976	155	76	102	50	65	32	206
1974	9	100	7	78	7	78	first 9 only

Superimposed on this trend has been a more complex and cyclical trend in the level of functioning or discretion at which the inspectors have been required to operate. As each new area of concern has been brought into their job there has been a tendency to require the inspectors to specify or judge standards of acceptability of the level of hazard or adequacy of the solution. This discretion has been subsequantly circumscribed by statute, regulations or internally by guidance in circulars.

The cycles have, however, resembled a spiral rather than a circle, in that each successive one has left the inspectors with more residual discretion (See Table 9).

The 1974 Act represents merely the latest, and perhaps greatest, increase both in the involvement in later stages of solution, and in the discretion allowed to, and expected of, the inspector. The Robens Committee report was based around a central theme of the promotion of "self regulation". This seems irreconcilable with the analysis of the implications of the Act which flowed from that report. It would appear that inspectors are required to become more, not less involved with industry under the requirements of the Act.

It is also possible to conclude from the analysis in this chapter that there are certain characteristics of the wording of statutes and regulations which produce the greater involvement in solutions and the greater discretion mentioned above. These are:

(1) Wording of provisions in terms of means of compliance, not end results, e.g. ventilation or routine environmental monitoring rather than a level of concentration of the dust, fume etc.

(2) Inclusion of qualifying words which water down absolute standards e.g. adequate, suitable, sufficient, so far as is reasonably practicable.

(3) Specification of the dimensions on which presence of hazards will be judged without an indication of an acceptable level on that dimension e.g. clean, safe, good condition etc.

(4) Allowance of exemptions or exceptions to general provisions at the discretion of the inspector, e.g. to periods of employment, whitewashing etc.

These pressures, and the tendency for the inspectorate to push the boundaries of its job voluntarily wider than statute, to take on an advisory and information disseminating role, and to exercise considerable discretion in the use of enforcement and prosecution, have resulted in a set of requirements for the training needs of inspectors which is now enormous. The next chapter looks at the way in which the qualities and qualifications required of inspectors have changed over the history of the inspectorate, and the position as it is now seen to be. The final chapter then tackles the question of the limitation of the job within the bounds of the possible.

TABLE 8

STAGES OF SOLUTION

A - Detection of Problem/Contravention
B - Establishment of Cause
C - Specification of Standard
D - Assignment of Priority
E - Generation of Technical Solution
F - Generation of Organisational Solution
G - Allocation of Resources
H - Implementation of Solution

LEVEL OF FUNCTIONING

SR - Stimulus - response
CC - Concept Learning - concrete
CA - " " - abstract
RL - Rule Learning
PS - Problem Solving

CHAPTER 6

QUALITIES OF INSPECTORS

"The few inspectors and superintendents that are appointed would need the eyes of Argus, the hands of Briareus, and the seven league boots of Jack the Giantkiller, with his coat of invisibility, to discharge their duties effectually".
(C. Wing, Evils of the Factory System Exposed 1837 p.27)

6.1 INTRODUCTION

This chapter looks at the way in which the requirements for qualities and qualifications for inspectors have changed over the history of the inspectorate. Three themes emerge from the historical analysis, technical knowledge, interpersonal skills, and qualities of impartiality and moral rectitude.

The purpose of the chapter is to indicate how the requirement on these three dimensions has changed and to arrive at a conclusion on the size of the task of providing the necessary qualities, either by selection or by training.

The data for this chapter came from the official inspectorate reports, government committee reports, parliamentary debates and the interviews with serving inspectors. Appendix 13 contains a description of methods of selection and training used in the inspectorate.

The first legislative control on textile factories (1802 Health and Morals of Apprentices Act) appointed "visitors", a J.P. and a clergyman of the Established Church, to secure enforcement. These gentlemen were to be "not interested in, or in any way connected with, such mills or factories". Apart from this no qualification or quality was specified. This system of unpaid and unqualified inspectors failed in the face of opposition from manufacturers who were often one and the same person as the J.P. who tried the case. Sir Robert Peel in 1815 (Hansard 5.6.1815 v.31, pp 624-7) in moving his Factory Bill proposed that the inspectors should be paid in order to remove one obstacle to their effectiveness. His only comment on their qualifications however was that "proper persons be appointed at quarter sessions".

The main criticisms of these early attempts at inspection were aimed at the visitors' supposed bias more than at their lack of qualification to carry out their task. Thus manufacturers, in evidence to the 1816 Select Committee, were concerned that inspectors would divulge their trade secrets to competitors and incidently distract the children from their work. The radicals on the other hand condemned the idea of inspectorships as follows:

"a lumbering affair --- (which) will turn out in practice, we suspect, a nullity; their chief recommendation with their projectors is probably the patronage they afford". (Leeds Intelligencer 10.8.1833)*.

It was to these qualities of bias and the objections related to them that the 1833 Commission turned its attention. They

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* Quoted in Thomas (1948)

recommended the appointment of central government inspectors who would act as a check on local justices by reason of their lack of local connections. "(the measures recommended) are not directly conducive to the immediate interests either of the master manufacturers or of the operatives, or of any powerful class, and are therefore not likely to receive continuous voluntary support". (Report of Commission 1833).

The Act of 1833 made no mention of the qualities to be looked for in the inspectors it provided for, apart from the fact that they should be able to detect breaches of the provisions and carry through impartially and discreetly their duties as legislators, judge and jury within the confines of the legislation. They were paid a salary of £1,000* and were expected to be men of substance and social position comparable to the manufacturers with whom they had to deal. The only other evidence is negative. They were not intended to be able to certify the age of children - provision was made for surgeons to do this - though subsequently the inspectors proved more willing to tackle this problem than the doctors (see e.g. Horner's report of January 1837). A proposed amendment to the Act to give inspectors the power to direct "in what manner the machines may be so fenced off as to protect the persons of those employed about them" was also defeated on the ostensible grounds that inspectors would not know anything of machinery. (Hansard 13.8.1833 v.20, col.583-6). The Commissioners of 1833 had already rejected proposals for legislation on similar lines for the same reason.

The four inspectors appointed by the system of political patronage were described in the words of the Short Time Committee of Birstall

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* From this sum the inspectors had to pay their travel and office expenses.

as follows:

"a briefless lawyer - a broken down Merchant, a poor aristocrat - and an intimate friend of Lieutenant Drummond - incompetent for their task, but amply provided with the most unconstitutional means of annoyance and mischief". (Address to the Friends of Justice and Humanity 1833).

The four inspectors so rudely described were in fact energetic men, already distinguished in other careers, Leonard Horner, a factory commissioner (as was James Stuart, and later inspector) ex warden of London University, a fellow of the Royal Society and of the Geological Society from a linen manufacturing background; Robert Rickards an East India Merchant; Thomas Howells a barrister and an ex judge advocate of Gibralter, and Robert Saunders, whose background is not stated in any documents I have been able to obtain.

The mill wardens, or superintendents (later sub-inspectors) also appointed by patronage under the 1833 Act were intended to be selected from the humbler and less educated classes of society as constables often were (Horner's Report for March 1838). Their salary of £250 p.a. exclusive of expenses was far higher than that of a common constable* however, as was their class: one Charles Browne was paymaster of the Montgomery militia, another Beal was a purser in the Royal Navy, Robert Baker who later became an inspector was a medical practitioner, Alexander Redgrave also later an inspector, and eventually the first Chief Inspector of Factories, was a clerk in the Home Office.

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* The pay of a common constable in Birmingham in 1839 was 17 shillings a week (Instructions and Orders issued by the Birmingham Police Office 1839).

In their early reports the inspectors stressed qualities of character as being important for themselves and their superintendents:

> "discreet and conciliatory conduct" (Rickards Feb. 1835)
> "vigilance" (Rickards Feb. 1835)
> "great discretion, moderation and forebearance" (Stuart Dec. 1836)

This was perhaps understandable in view not only of the opposition from manufacturers and their supporters in the country and in Parliament, but also of the behaviour of some of the early superintendents. Out of a cadre of 15 superintendents, in 1840, one (Wood) had resigned after bitter complaints of overwork and of his superiors living it up in London - evidence which he gave to the 1840 Select Committee. Another, Webster, had been dismissed once for pocketing fines andshowing favouritism in applying the law; reinstated, he was dismissed a second time for debt and circulating a document criticising his superiors. Two others (Trimmer and Heathcote) had been severely reprimanded for insubordination. Yet another, Beal, had been dismissed for leaking information that inspectors had been instructed to report on Chartist meetings. Even Robert Baker was severely censured for carrying on issuing certificates of age as a certifying surgeon for money after his appointment as a superintendent. (See Thomas 1948).

6.3 1855-1921

In 1855, in common with the rest of the civil service, entry to the inspectorate was regulated by examination.

The concerns over character and morals were codified as a requirement to be of moral character and habits and free from debt.

Good health was insisted upon (Rickards had died from overwork in 1836, and the early reports of inspectors speak for the rigours of inspection in an age when railway travel was only beginning).

The examination subjects were:

Handwriting and Orthography,
Arithmetic, including vulgar and decimal fractions,
Latin or a Modern language,
English History,
Geography,
A Precis or abstract of official papers,
Elements of Political Economy,
English Composition.

Applicants had to be between 25 and 40. (Joint Report October 1855).

This insistence on knowledge and literacy meant that candidates had to be educated and hence to be of at least middle class status, since no others would have received schooling beyond the age of 12.

The remaining qualities were expected to be gained by doing the job, guided by detailed instructions from the inspectors, and by a system of "sitting by Nellie" training.

"Soon after Mr. Walker's appointment (as superintendent in Scotland) he repaired, agreeably to my directions, to Dundee, and accompanied Mr. Beal, the Superintendent of the Dundee division, on his visits to all the factories of the Dundee, and to a few of the factories in the country part of that Division, in order that he might be practically instructed as to the proper way of discharging the duties of his situation". (Stuart's Report April 1838) (See

also Howell's Report for June 1841).

The reports of the inspectors spoke only rarely of the qualities needed by their staff until the 1870's. What was said was very much the same as before 1855. Thus Redgrave in 1869 (October) praised his inspectors for their ability to administer any legislation, and for their impartiality. In the same report he contrasted the job of the factory inspector with those of the mines and the alkali inspectors, he maintained that the last two needed to be persons possessing special qualifications whereas factory inspectors did not, because the job consisted only of administrative duties and of seeing that specified persons did as the law had required them to do.

Baker in his report of October 1870 supported Redgrave's views in discussing the idea of boiler inspection. While considering the inspection to be a good idea, he thought it should be done by insurance company engineers, not by factory inspectors, who should merely be required, and competent, to check that it had been done.

Again in his October 1871 report Baker, discussing ventilation requirements, said that inspectors must be able to call upon expert medical and engineering help to enable them to assess whether a particular dust were injurious, and if so the best mode of applying "other mechanical means" (the words of the statute) supposing a fan to be unnecessary or too expensive. The implication again is that technical competence was not to be expected. However the joint inspectors' report of 1856, when discussing the provision in the 1844 Act for the appointment of arbitrators on disputes over matters of fencing had said the following:

"(it is a question) which requires for its solution, not the opinion of professional engineers but the evidence of intelligent and observant men who are daily employed in factories".

It is not clear whether the report is implying inspectors or works engineers, though the context suggests the former.

Baker, in his 1875 (October) report contrasted the British and French inspection systems and reported that French inspectors had to be state engineers or diplomates in civil engineering, pupils of the Ecole des Mines or the Ecole Centrale des Arts et Metiers, and to have been Inspectors of the Work of Children for 3 years or have directed or overlooked works employing not less than 100 people for 5 years. However he reported this without any enthusiasm for any change in the British system.

The tone of the reports prior to the 1878 Act was thus opposed to the idea of the need for technical qualification among inspectors. Soon after this there was a change in tone and emphasis on technical qualification, coupled with the incorporation of technical papers in the entrance examination together with papers on the factory law and its history. The examination then stood as follows:

1. Handwriting,
2. Spelling,
3. Arithmetic, including vulgar and decimal fractions,
4. English Composition,
5. Theoretical and Practical Acquaintance with factories and workships, including a knowledge of their sanitary requirements,
6. Applied mechanics, including elementary mechanical drawing,

7a. Factory and Workshops Acts administered by HMFI

7b. An acquaintance with the history of factory legislation in the U.K.

(Parliamentary Papers 1890-1 LXIII P.461)

(N.B. The Language paper which appears in the earlier requirements and in later provisions and in a parliamentary answer in 1881 (Hansard v. 258, col. 1377) does not appear here, perhaps from inadvertence).

Candidates were required to pass all these subjects. In the case of a competition for places the performance on 5, 6 and 7 was the deciding factor. The age limits were then 21 to 30 or exceptionally 38 if the candidate had been occupied "as a master manager, foreman or workman in a factory or workshop for at least 7 years and --- acquired a practical acquaintance with the working of the factories and workshops". Commissioned officers in the Army or Navy were also allowed to enter at an older age.

6.3.1 WORKMEN INSPECTORS

The almost universal failure of local authorities to administer the 1867 Workshops Regulation Act led Redgrave in his October 1869 report, to make a strong bid for the inspection to be transferred to the Factory Department. General realisation of the failure led to the Factory Act of 1871 which made this transfer. Junior sub-inspectors were appointed to take some of the burden, but pressure soon began to mount for more assistance in the form of a lower grade of inspector (see Appendix 13 for the rate of growth of the Inspectorate). The Commission of 1876 in recommending the appointment of such people, noted that

"the Secretary of State has power to appoint persons to assist the factory inspectors in the discharge of their duties, without restriction as to the number or social position of the persons employed. This power has never as yet been exercised to appoint persons of the standing, for instance, of inspectors of nuisances, though the measure has been strongly recommended, and has been, we are told, in contemplation".

Redgrave had strongly opposed the idea. As early as October 1873 he had written in his report:

"the law is obeyed more readily and cheerfully when administered by persons of some social position, than by persons holding an inferior rank". --- inspecting officers should be of a rank in life and in education at least equal to the better class of masters. --- Another serious objection to the employment of inferior inspectors is the habits of the class of persons from which the selection would be made. The system of gratuities is inherent in this class; I do not call it bribery, but it is analogous to it".

In his report of 1879 Redgrave summarised his concept of an inspector and his objections to the appointment of working men. It is worth quoting him at length.

"The appointment of the inspectors is a duty which imposes responsibility upon the Secretary of State, under whose instructions they act. An inspector upon his appointment is invested with very considerable authority; upon being posted to a district he acts in a great variety of

circumstances upon his own judgment and discretion; and very much of the successful administration of the Act, its acceptance by the employers, and the respect due to it by the operatives, depends upon his thorough independence, his strict impartiality, his patience, his unvarying good temper, and his savoir-faire in dealing with elements of a very discordant nature.

An inspector who may not possess the above qualifications would be, in so far as he is deficient of any of them, not a thoroughly efficient public servant.

An examination of a somewhat severe character is instituted as a test that the candidate is of sufficient intelligence and knowledge to give a guarantee of his general aptitude for performing the duties of the office, but the chief test of fitness, after all, is the selection of the candidates to be sent up for examination, and I think it of great importance that a selection should be made of persons ascertained prima facie to be eligible and desirable candidates to be subsequently justified by the formal examination.

The question of the appointment of practical working men has been discussed, and has been advocated by the working men themselves. It is for this reason that I bring the matter before you. They are deeply interested in the thorough and universal observance of the Factory Regulations; they have advanced their opinions with earnestness, yet with moderation; and having discussed the point with them, I desire to treat with the respect which is due to them a subject in which I am bound to differ from their views.

The principal grounds upon which they have advocated the selection of working men is, that "in a great many "cases the inspectors have no practical knowledge of the "duties appeartaining to the office," that on the other hand working men are practically acquainted with the manner in which the law is evaded, and know the employers who practice evasion; they understand the habits of the operatives, and the circumstances which would indicate overwork in various occupations; and that they are in the way of hearing of evasions at their meetings and associations from men of their own class who hesitate to make a communication to an inspector who is possibly an entire stranger to them, not knowing to whom such communications may afterwards be imparted, or in what manner it may become known to their serious injury. They think from the above reasons they are better calculated to find out irregularities than the inspector appointed under the present system.

As the matter stands at the present time the examination would be a bar to the selection of a working man; but if it were found to be necessary for the Department to have the services of some working men, doubtless an arrangement might be arrived at which would overcome that difficulty. It is well known that some most distinquished officers in the army have risen from the ranks, and I can assure the working men I should be very glad if I could see my way to opening a career for some of them in the Department.

Some years ago I felt that there was a weakness in our administration in that a candidate who up to the time of his appointment, was entirely ignorant of his duties and

of the law was sent to a colleague for a few weeks, and was then placed over a district but very slightly prepared for the important work before him; and the Secretary of State approved of the system now in operation whereby an inspector is not placed in the charge of a district until he has become thoroughly acquainted with the nature of his duties, and the manner in which they should be discharged, so that some part of the objection, which I think had at one time some foundation, ought not now to exist.

With respect to the hesitation felt by some, to making a complaint openly, for fear of exposure, I am quite aware of the injury that might result from the author of a complaint being known, and in no case is the name of the writer communicated to anyone, nor does any such letter leave my possession, and with respect to complaints sent anonymously, of which very many are received, and which are always investigated, and are rarely sent, I believe, without there is something or other underlying them, they also do not leave my possession; so that every care is taken to prevent any one suffering from a perfectly justifiable act in assisting to enforce the full observance of the law.

There is however one obstacle to the appointment of a working man to be an inspector which I see no means of overcoming.

An inspector must be independent of masters and men. The working men would fear that the appointment of a manufacturer to be an inspector would deprive them of an impartial administration, that he would have class influences

and prejudices which it would be most difficult for him to banish; and, indeed, they regard the inspectors as now representing the same class in society as that to which manufacturers belong, and as having a leaning rather to their own class than to that of the operatives.

So, the appointment of one who was a working man, having to exercise the powers of inspection and examination would be viewed by manufacturers with no less jealousy".

Redgrave's opposition continued despite deputations from the Trades Union Congress to the Home Office in 1878, 1881 and 1882.

As a special experiment the examination was waived in 1881 for J. D. Prior, a workman,to be appointed as an inspector. The experiment was stated in parliament to have been a success (Hansard 5.3.1886 v.303, col 4-5) and Prior later rose to the level of Deputy Superintending Inspector. However, it was not until after Redgrave's retirement (1891) that the grade of assistant inspector was created, to be filled by men drawn from working class backgrounds. The first ones were appointed in 1893 after an examination in elementary knowledge of workshop law.

Sprague Oram in his chief inspector's report of October 1893 indicated that all had not been plain sailing.

"Some --- by their previous knowledge of factory and workshop life soon fell into line and after a short period of instruction were capable of producing creditable reports. --- I cannot report so favourably upon all ---. To take men

unaccustomed to much writing, without the slightest notion of reporting, and who had not been trained by previous calling to any such discipline as is required of them here, was but to transplant them into a foreign existence".

This led to the establishment of an extended examination for them in the following:

"(1) Spelling and Handwriting as tested by dictation,

(2) English Composition (Ability to write a simple and intelligible report to a superior officer),

(3) Arithmetic (first 4 rules, simple and compound interest),

(4) An elementary knowledge of the principle provisions of the law relating to workshops for the time being in force".

(Report of 1911 Committee).

In the years from 1893 to 1921, 82 assistants were appointed. An idea of the backgrounds of 42 of them can be gained from a parliamentary return of 22nd March 1907 (Return No. 172) supplemented by a parliamentary answer of 1894 (Hansard 7.6.1894, v.25, col.578-9). Table 10 summarises the backgrounds and shows that, out of 42, 24 had worked as craftsmen or operatives at some time, and a further 11 had been clerks in industry or commerce.

The 1911 Departmental Committee on Accidents heard evidence from inspectors, assistants and representatives

TABLE 10

PREVIOUS OCCUPATION OF ASSISTANT INSPECTORS

Sanitory Inspectors	5	(1 previously a joiner)
Factory Inspectors Clerk	13	(6 were previously clerks in other undertakings 4 were previously apprentices or foremen)
Printing industry	7	(2 managers, 2 journeymen)
Shipbuilding	4	(1 clerk)
Textile	6	(2 clerks, 3 supervisor/manager)
Boot and Shoe	1	(clerk)
Engineering	2	(1 manager)
Steel	1	
Building	2	(1 surveyor, 1 journeyman)
Commerce	1	(clerk)
	42	

of employers and unions on the subject of workmen inspectors. The chief inspector, Dr. Whitelegge, gave them his approval as a useful adjunct to the general staff and despite considerable pressure from the members of the committee, particularly A. H. Gill and Ramsey MacDonald, was happy with the system of selecting them. He also defended the policy of allocating them to workshop inspection and the more straightforward, non-technical aspects of factory inspection. He commented:

"It is not economical or desirable to take up the time of an inspector who is skilled in the fencing of machinery and in ventilation on a large scale, in visiting works that call only for counting heads, ascertaining hours and so on".

Here he seemed to be denying specifically the value of workshop experience in judging and recommending fencing and other mechanical provisions. The assistants' role was seen by him to be a somewhat menial one fitted to their status and background.

Other inspectors, e.g. James Rogers, District Inspector for Birmingham, backed up these views and played down the value of the sort of practical experience that assistants had.

"I do not consider a practical knowledge of machinery is of great help to an inspector. --- If I had an assistant who had been employed in a cotton factory, I do not think he would be of any more use for the purpose of inspecting factories in Birmingham, where the cotton trade is not

done, than the assistant I had who was formerly a sanitary inspector".

In strong contrast the witnesses from trade unions, especially in the textile and dock industries repeated the call made in the earlier TUC resolutions.

"(inspectors should be) practical men with a knowledge of --- machines and machinery --- either engineers or cotton workers" (evidence of J. Crinion, President of the Amalgamated Card and Blowing Room and Ring Frame Operatives Association, para. 4101/2)

"There is no college education, in my opinion that can make up for the lack of practical knowledge". (evidence of A. Smalley, General Secretary of the Operative Bleachers, Dyers and Finishers Association, para. 5074/5).

Mr. A. Gee, General Secretary of the General Union of Weavers and Textile Workers favoured "practical knowledge and a slight theoretical training" (para. 6971), while Mr. H. Orbell of the Dock, Wharf, Riverside and General Workers Union suggested practical examinations for inspectors in rope and wire splicing and detection of flaws in tackle. All these point to the need for men of the quality and background of the assistants. This view was summed up by A. C. Goddard a serving assistant inspector when he said "there is a higher education required than that of the University. There is the education of the trade service and the industrial world and life generally". (para. 18052).

The committee failed to reconcile these arguments. The majority recommended that the system of double entry be abolished and all be taken into the Class II of the inspectorate, but there was a minority report by four members (F. D. Acland, M. P. Chairman, Right Hon. A. M. Carlisle of Harland & Wolff, J. B. Tattersall of the Oldham Master Cotton Spinners Association, H. Vivian, M.P.) who recommended its retention on the grounds that practical men of limited education would otherwise be excluded to the detriment of the Department. J. Ramsay Macdonald, M.P. and A. H. Gill, M.P. also disagreed with the majority but recommended instead that all "the ordinary work of inspection should be done by men qualified by practical experience", the technical knowledge being concentrated in specialist branches.

In the face of this disagreement the Secretary of State decided to keep the assistant grade (Hansard 14.12.1911 v.32, col. 515) in order not to exclude either university graduates or practical men. As a compromise he instructed that promotion channels should be eased between the two grades as had been strongly requested by the assistants in their evidence to the Committee.

In the end the inspectorate's own departmental committee in 1920 recommended, apparently without provoking any parliamentary protest, that the grade should be phased out. No more appointments were made to it and the last assistant was promoted to a Class II inspector in 1930. Mess, writing in 1926 stated without any supporting evidence: "In practice they (workmen inspectors) have not been particularly efficient; the advantages of having been themselves

ordinary workers do not compensate for the disadvantages of a very limited education".

The experiment of the working men inspectors at assistant grades illustrated one of the enduring problems of the qualities and qualifications of inspectors, the dimension of practical v theoretical knowledge. At the time this dimension was confounded with that of social class and hence of political bias. It also revealed how the pressure groups lined up on these issues; the inspectorate by and large emphasising the intellectual and administrative qualities and playing down the practical, the unions firmly advocating the virtues of practical workers, and the employers in this instance wanting both.

6.3.2 WOMEN INSPECTORS

At about the same time as the first agitation for workmen inspectors a movement started to establish a women's branch of the inspectorate. The TUC congress passed a resolution in 1878 calling for the appointment of women to inspect the many factories where women and girls alone were employed. The grounds were, that women would be happier talking to other women*. Redgrave was as opposed to this experiment as he was to working men inspectors. In his report of 1879 he wrote:

"--- the general and multifarious duties of an Inspector of Factories would really be incompatible with the gentle

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* The preoccupation with communication is also seen in the concern over the appointment of Yiddish speaking inspectors in East London (Hansard 4.1.1894 v.20, Col. 827) of Welsh speaking inspectors in Wales (1891 Act S.23) and of Irish Nationals in Ireland (Hansard 8.8.1905 v.151, col. 558).

and home-loving character of a woman" --- (checks on overworking need) the activity, acumen and stern authority of a man to enforce obedience to his interrogations".

The subject proceeded no further despite public pressure and the support of Sir Charles Dilke the President of the Local Government Board who was at the time, effectively in charge of the Factory Department. The Home Secretary Sir William Harcourt was as opposed to the scheme as Redgrave.

However, after a report of a House of Lords Select Committee on the sweating system (1888-1889) had revealed massive inadequacies in the control of sanitation and wages, a Royal Commission was appointed in 1891 to study the employment of women (Royal Commission on Labour 1892/1893). The success of the 4 women appointed by the Commission to investigate the subject, plus renewed public pressure on the Home Secretary, now Mr. Asquith, achieved a promise of the appointment of 2 women as inspectors. This took place in 1893.

The lady inspectors (as the branch was called) were subject to the same entrance examination as men but did not compete with the men for places. Their work was at first confined to welfare, hours of employment and sanitation. They did not deal at all with safety matters, and the majority did not have technical training. According to the 1907 parliamentary return on the previous occupations of inspectors (op. cit) 3 of the 11 lady inspectors had been sanitary inspectors; 2 had been clerks

or secretaries (2 having been clerks to the Royal Commission); 1 had been an inspector for children; 1 had been a bacteriologist and 1 a lecturer in hygiene; the previous occupation of 3 was not mentioned.

The work of the lady inspectors was widely regarded as a great success (e.g. Djang (1942) p.66, Hansard 29.7.1898 v.63, col. 516, Hansard 4.8.1904 v.139, col. 1022). During the First World War, 31 lady inspectors were appointed, many on a temporary basis to replace male inspectors serving in the forces, and increasingly the women came to do work which previously men had done. The 1920 departmental committee consequently recommended that the men's and Ladies inspectorates should be amalgamated and eventually should have the same standard method of entry. This plan was not greeted with delight by all the men inspectors.

"It was their conviction that women lacked scientific and technical training which no good inspector could do without --- In regard to safety and health men inspectors believed that they had done far better work than their female counterparts.(Djang 1942).

However as early as 1911 Miss Paterson, Deputy Principal Lady Inspector had said in her evidence to the Departmental Committee on Accidents:

"I think you can get to know thepoints of danger on certain machines you have to inspect, especially when the inspection goes along with the investigation of accidents" (para. 4600)

She had denied the necessity for prior technical training. This was an argument the men inspectors had also used (v.s) about the need for practical experience for inspectors, and therefore their case was not strong in opposing the amalgamation.

6.3.3 SPECIALISATION

While the developments in the women's branch and in assistant inspectors were going on, the main body of the inspectorate was also undergoing changes. 21 years after Redgrave had claimed so regally that his sub-inspectors could administer any law by reason of their qualities and experience, specialisation had started in the Inspectorate. With the passage of the Cotton Cloth Factories Act of 1889, E. H. Osborn was transferred from the general inspectorate in 1890 to administer its provisions. In 1892 in a debate on the Queen's speech (Hansard 10.2.1892 v.1, col. 156-7) the Home Secretary, admitted,

"(it is) by no means easy to select men competent to administer that Act which involves a wide knowledge of instruments and various technicalities".

The question of technical qualifications now came to have increasing prominence. Previously there had been no questioning of the adequacy of inspectors' knowledge and ability to cope with the technical, safety aspects of legislation, but now the subject became an important one. Part of that debate has been discussed above under the heading of workmen inspectors, particularly with reference to practical experience. The topic is taken up below (p.185)

In 1892 the inspection of particulars was placed under a specialist branch with a general inspector, T.Birtwhistle at its head.

The requirement to notify 4 industrial diseases (Lead, Arsenic, Phosphorus and Mercury poisoning) in the 1895 Factory Act was followed in 1898 by the appointment of the first Medical Inspector Dr. Thomas Legge.

Osborn was retained as Engineering Adviser in 1899 on his retirement from the inspectorate. In 1903 he was replaced by Sir Hamilton Freer-Smith with the title of Inspector of Dangerous Trades. This was the start of the Engineering Branch, staffed by general inspectors seconded for special duties and selected for their engineering qualifications. In 1902 G. Scott Ram was appointed Electrical Inspector following the rapid spread of electrical power in factories.

In all these developments the limit would appear to have been reached in the scope of general inspectors. It was felt that no one inspector, no matter what his qualities, background or qualifications could have encompassed all the technicalities of the law and the problems which arose from it (see Chapter 7 for more detailed discussion).

6.3.4 DEVELOPMENTS IN THE GENERAL INSPECTORATE

In 1907 the inspectorate was a largely technical body. 47 were engineers, including 14 who were Whitworth Scholars or Exhibitioners, 11 were schoolmasters, mostly in science, 6 were chemists or analysts, 18 were managers, masters or

secretaries of employers associations, 6 were clerks, 3 were sanitary inspectors, 7 had come straight from University, 3 were army officers, 3 working men, 2 doctors (including Dr. Legge) and 1 a barrister. Most of the engineers were among the younger inspectors appointed after 1890, most of the masters and managers were appointed prior to that date. (Parliamentary Return 1907 No. 172).

In 1906 the examination system had been altered by splitting it into two parts. On receiving nomination, after application and interview by a committee consisting of the parliamentary under-secretary and two others, the candidates sat a competitive examination in 6 subjects, 2 compulsory (English composition and arithmetic) and 4 optional in 3 of which he had to pass. The choice of optional subjects was:

English Literature,
English History,
General Modern History,
French, German or Italian,
Mathematics,
Economics, including knowledge of the history of industry in modern times,
Chemistry,
Physics, including mechanics,
Practical mechanism and industrial machinery.

At the end of 2 years probation he took a non competitive qualifying examination, in factory law and sanitary science. On passing this and subject to reports of satisfactory performance of his probation, his appointment was confirmed.

This system recognised that factory inspectors were made and not born. The chief inspector, Dr. Whitelegge in his evidence to the 1911 Committee strongly supported the view that it was not appropriate to expect knowledge of these subjects.

"Close study of it (factory law) outside, --- would be a very laborious proceeding, of a very academic order, not tempered with any experience of actual conditions inside factories and workshops". (para. 894).

"the study of the Factory Act by anyone not engaged in the administration if it is a toilsome process. It could hardly be thorough, and unless it were thorough --- would be of no great value". (para. 929)

Whitelegge was also lukewarm about the advantages of practical experience of a particular trade, as opposed to a competence in the disciplines, such as engineering or chemistry which underlay the hazards encountered.

He felt that only in administrative experience were any of his inspectors lacking (para. 905). He stressed particularly the fact that the job was now so large and complex that the inspector could never know all of the law or all of the job. In answer to H. J. Tennant M.P. the Committee's chairman he agreed to the following ideal list of qualities for an inspector:

General knowledge, personal qualifications, activity, energy, honesty, sobriety, ability to manage people, ability to follow up investigations, ability to state a case in court,

a diplomat, an administrator, lawyer, doctor, chemist, engineer, in summary "the wisdom of Solomon combined with the activity of Dorando" (para. 906-915). Education was more important to him than specific experience, hence his defence of the broad entry examination subject choice. He repudiated Ramsay Macdonals's allegations of frequent complaints of inspector's lack of knowledge of machinery as isolated occurrences.

The Committee in the recommendations of its report attached the highest importance to practical knowledge and experience of factory and workshop and suggested the following order of priority for nomination to take the entry examination:

"(a) Those who have been employed in one of the main factory or workshop trades for a period of 7 years.

(b) Those who have had an adequate experience of factories or workshops, whether or not interrupted by such a scientific training as would be involved by a Whitworth Scholarship, or a science course at a University.

(c) Those whose records in scientific or administrative work fit them, in the opinion of the Secretary of State, for service in the factory inspectorate.

The majority of the inspectors should be drawn from Class (a)".

The Committee envisaged a progression of the ablest of the intake from routine to complex work. They recognised the aspect of the job which required "painstaking watchfulness" in workshop inspection, and also the

requirement for "the very highest qualities of ability and tact, capacity to administer a busy office and state a case on paper or in a court of law, and the power of obtaining the trust and confidence of the largest employers, as well as the workpeople".

The Committee also recommended that changes be made to the examination system by (a) reinserting the qualifying examination subjects in the entrance examination, (b) substituting for the general modern history paper a technology paper.

These last recommendations and the similar protests of members of parliament (e.g. Hansard 27.2.1906 v.185. col. 1024-5, 1.3.1906 v.152, col. 1305-6, 3.3.1908 v.185, col. 529-30, 10.3.1908 v.185, col. 1306-7) were resisted by the inspectorate and the proposals were shelved during the war (see reply to parliamentary question Hansard 5.7.1916 v.83, col. 1535) and then quietly forgotten.

The situation remained the same until the reorganisation of the inspectorate in 1921.

6.4 1921-1967

6.4.1 SELECTION

In 1921 the reorganisation of the inspectorate recommended by the departmental committee of 1920 was implemented. The grade of assistant was dropped and the men's and women's branches were amalgamated.

In 1925 the Civil Service Commission published new rules for entry to the Civil Service, and the inspectorate conformed to them. The qualifying examination after 2 years was retained unchanged, but the entry examination was replaced by a blanket requirement.

"(candidates) must satisfy the Commissioners that they have experience and have gained such systematic education --- as in their opinion fits them for the post". (Report of 1930 Departmental Committee on Factory Inspection). The report went on to say:

"in general candidates should possess a University Degree, or other equivalent qualification in engineering, industry or science, but the Commissioners may dispense with such qualification in the case of a candidate with suitable works or other specialist practical experience".

In the 5 years from the introduction of the new system the 29 entrants had included 22 engineering or science degrees, 4 other degrees, 23 with suitable works experience and 6 with other specialist practical experience, which included engineering, chemistry, social work and industrial research.

The 1930 Departmental Committee heard evidence from the inspectorate, from employers and from the unions. Some protests were raised by employers about the amalgamation of the men's and women's inspectorates on the grounds that the women did not have engineering qualifications and "could not sense the works atmosphere". These protests had been aired previously in Parliament (e.g. Hansard

23.7.1923 v.167, col. 37; 15.4.1926 v.194, col.462; 25.11.1926 v.200, col. 513) and were couched as much in tones of moral outrage at the thought of women going into factories where men worked in scanty clothing or where the inspectors had to climb ladders to do their inspection, and where they had to lay down the law to male managers and workers, as interms of the engineering knowledge of the women inspectors. The TUC on the other hand praised the women inspectors. The Committee rejected any thought of reverting to a division of labour whereby women did the welfare inspection and men the machinery and safety inspection.

The main argument aired to the Committee was concerned with the technical qualifications of the recruits. The Committee rejected a demand from the employers that all inspectors should have engineering knowledge in the following words:

"We do not by any means underrate the value to an inspector of having acquired some general technical knowledge before entering the service --- We are satisfied, however, that the technical knowledge required for the ordinary work of an inspector does not go beyond what any candidate - man or woman - who has an alert and practical mind, can acquire after he or she has joined the Department. --- If recruitment were to be limited exclusively to candidates whose natural bent and previous training and experience had directed their interest mainly towards that (engineering) side of the work --- the whole outlook of the Department might be unduly narrowed --- We take a somewhat similar view in regard to the possession of suitable works experience".

This issue was raised again with considerably greater force and acrimony after the second world war. During the war no permanent appointment had been made, and many inspectors had been seconded to other work. Post war there was therefore a large complement of temporary inspectors, many with very low qualifications compared with the requirements of the rules set out above. Over the next few years these temporary inspectors were either phased out, or if suitably qualified selected for permanent appointment (41 were made permanent in 1946-1948 out of 87 who were in posts at the end of 1945) (Information from monthly circulars).

The permanent appointments made in the years following the war showed a very different pattern to those pre-war. Of the 107 appointments in the years 1950-1954 inclusive, 25 had science or engineering qualifications, compared to 88 out of 124 in the years 1930-1940 (figures collated from various parliamentary questions and debates*) In 1954 9 out of 83 Class II inspectors had science or engineering degrees and 13 had industrial experience (Hansard 13.5.1954 v.527, col.1403). In May 1956 this had dropped to 8 out of 101 with technical qualifications (Hansard 1.5.1956 v.552, col. 194) as a result of only 6 out of 57 recruits having such qualifications between March 1953 and June 1956 (Hansard 7.6.1956 v.553, col. 1261).

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* Hansards: 13.6.1951 v.488, dol. 2471-80, 17.5.1951 v.490, col.1029, 28.2.1952 v.496, col. 167, 17.7.1952 v.503, col. 168, 27.7.1954 v.531, col. 214 12.11.1954 v.532, col. 1632-1644.

Recruitment was worrying the Superintendent Inspectors greatly also, as is witnessed by the discussion of it in almost all of their conference minutes from 1950 to 1958. In June 1954 agreement was reached with the Ministry of Education to put on a 1 year technical course for arts graduates.

"The intention of the course is to give these inspectors elementary grounding in Chemistry, Physics, Mechanics, etc. with particular reference to industry". This course at Leicester College of Technology was regarded only as a temporary expedient until the percentage of technically qualified recruits could be raised again. It was dropped after 2 years in June 1956.

In a series of parliamentary debates on the inspectorate in 1951, 1954 and 1956*, attention was repeatedly called to this shortcoming in recruitment. The government repeatedly had the words of the 1930 departmental committee thrown in its face, as well as the words of Ernest Bevin in the 1942 debate on the inspectorate (Hansard 22.7.1942 v.382, col. 54)

"There is a very close understanding between the factory department and works managers. There is much in common between them, because to a very large extent they are trained from the same personnel".

How, it was asked could the largely arts graduate entry post war have this same relationship. Technicians, it

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*Hansards : 13.5.1951 v.488, col. 2471-2480; 12.11.1954 v.532, col. 1632-1644; 16.7.1956 v.556, col. 856-927

was said (Dr. Barnet Stross 1956 debate) despised lay people who did not understand the discussion of scientific matters. Industry was insisting on these technical qualifications for those it recruited to the jobs in safety, why should the inspectorate not also.

In 1954 the parliamentary secretary to the Ministry of Labour, Harold Watkinson, had accepted many of the points made, and conceded that the inspectorate "would like 50% of its members to be technically qualified, but at present the figure is 36%." The problem, he accepted, was one of pay; the inspectorate could not compete with industry to attract scientifically qualified staff.

In reply to the 1956 debate (Hansard 16.7.1956 v.550, col. 856-927) Robert Carr, then Parliamentary Secretary was more attacking. He claimed that members had misconstrued his predecessor's statement about intending to recruit 50% technically qualified; there was a problem but it was not as acute as was being suggested,

"the knowledge of technical matters --- is in our opinion something which the arts graduate can pick up provided - and this is important - that he is helped by suitable training and by the co-operation of his technically qualified colleagues both in the general inspectorate and in the special branches --- the work of the general inspectorate certainly requires knowledge of technical matters but it is in itself an executive job".

This last was reference again to the problem that qualified engineers could not be paid extra for their qualifications

as their job was not a professional one which could not be done without the qualification.

These arguments, although perhaps valid in principle fall down on the simple fact that, at the time 36 of the 96 districts had no inspector with technical qualifications in them (Hansard 26.6.1956 v.555, col. 257).

Carr also strongly argued that scarce resources of qualified manpower should be used in industry to produce goods rather than in the inspectorate.

The result of the parliamentary agitation was the setting up of a departmental working party in 1955 to look at the inspectorate's organisation which reported in May 1956. The white paper called Staffing and Organisation of the Factory Inspectorate (Cmnd 9870) was published shortly after the 1956 debate. Its figures largely supported the contentions of the members who had raised the issue. Recruitment had been much poorer post war. Of 174 post war recruits in post 24 (13.8%)had technical degrees and 85 (48.8%) had industrial experience compared to 76 (61%) and 86 (68.8%) of 125 pre-war inspectors still in post. Applications had been down, 400 per year in 1950-4 as against 1100 per year in 1935-9, as had the proportion of engineers and chemists suitable for interview (81% in 1935-6, 30% in 1955-6). The Civil Service Commissioners also reported that too many merely average candidates and too few outstanding oneshad had to be accepted. Resignations too had increased from 24 in 1934-9 to 35 in 1950-5, and of those more were for reasons other than marriage (14 for marriage 1934-9, 11 in 1950-5).

The situation was concluded to be not satisfactory, although not a crisis. The white paper spent considerable space arguing the point of the proportion of technically qualified recruits (pp 34-37). In summary their argument ran as follows:

(1) The argument was over the mix of technical and non-technical inspectors, since a wholely non-technical cadre was unthinkable and a wholely technical one impossible due to shortage of possible recruits.

(2) The work of the inspectorate could not be divided efficiently and economically into technical and non-technical to match a similar division of the staff. Much of the work was non-technical (particularly the Welfare, Hours of Employment and much Health legislation) and more was technical only at a low level. Non-technical graduates had succeeded perfectly adequately (by what criterion is not stated) and in any case experience in the whole range of technical background was wholely impossible. This raised the question whether the work was of such a nature that it was indifferent whether inspectors be of technical or non-technical origin.

(3) However the non-technical only succeeded because:
   (a) they learned from technical colleagues,
   (b) they could consult technical colleagues day to day.

(4) Technical inspectors had a "general scientific background and attitude of mind" and so could cope outside their specialism (a point made strongly by Dr. Stross in the 1956 Debate. Hansard v.556, col. 905-6).

(5) Technical inspectors were also needed as subsequent

recruits for the chemical and engineering branches.

Having aired these arguments the white paper dodged any firm conclusions, refusing equally to endorse the formula of "50/50" or "as pre-war" and contenting themselves with the easy statement that "every effort should continue to be made to increase interest in the Inspectorate among technically qualified persons, e.g. at the Universities", and then added the rider that the Inspectorate should not compete too vigorously since the engineers and scientists were scarce and needed elsewhere.

At the same time the whitepaper argued for the expansion of the specialist branches and opened the way for recruitment directly into them as well as via the general inspectorate. Cross transfers at all levels between the general and specialist inspectorates were to be encouraged to make careers more attractive. This expansion coupled with outstationing of specialists, also recommended, was designed to overcome the shortfall in technical knowledge in the general inspectorate, and provide the training, manpower and day to day expertise needed (as set out above). The Superintendent Inspectors were not convinced of the value of this decentralisation (October 1956 S.I.Conference Minutes) and after a small start in 1957 it fizzled out.

The situation over recruitment improved from that point on. In answer to a parliamentary question in 1958 (Hansard 3.12.1958 v.596, col. 1175) Dr. Stross was informed that 76 of the 97 districts now had technically qualified inspectors of whom 63 were Class II's (This compares with 60 out of 96 in 1956 and 68 out of 92 in 1939).

Parliamentary concern then turned to the qualifications of the inspectorate to inspect construction sites where the fatal accident toll was high and not falling. Dr. Stross asked 5 questions on the subject in 1959 and 1960. A senior inspector post had been created in 1957 in the engineering branch to deal with Building and Civil Engineering. This section was strengthened in 1961 after the passage of the 1961 legislation. In 1966 special construction districts were formed and in 1967 recruitment of construction inspectors direct from the industry commenced. The general inspectorate were thus gradually excluded from inspection of construction sites.

The assistant inspector grade was revived in 1965 after the passage of the 1964 Offices, Shops and Railway Premises Act, and a new grade of Fire Inspector was added to cope with the issue of fire certificates. These developments although mainly designed to cope with new work, also served to relieve some peripheral activities of the general inspectors.

6.4.2 TRAINING

During the period from 1921 to 1967 there were considerable developments in the training of inspectors. The practice which had prevailed for years was of training by experience:

"As a rule each junior sub-inspector upon his appointment is attached to one of the Metropolitan sub-divisions. He there learns his duties and also has the advantage of meeting at this office his metropolitan colleagues (this was a time when one man districts were the rule) --- It

has enabled us to discuss and settle many questions of practice and uniformity ---. Formerly when a sub-inspector was appointed he was sent to one or more experienced sub-inspectors to learn the routine of duties, and was then transferred to the vacant post not a quarter informed upon the details of the Acts of Parliament, or upon the performance of his duties". (Redgrave's Report for October 1873).

Although refined a little by a systematic practice of exposing inspectors to different industries by regular 2 yearly moves from district to district in their earlier years of service (Circular letter No. 183, 10.4.1900) the training was not made more systematic until after the setting up of the Industrial Museum in Horseferry Road in 1927. Thereafter formal training courses were instituted (monthly circular July 1930, Djang 1942). In 1939 the training course was 2 weeks; in 1946 it was extended to 4 weeks "in view of the increasing technicalities of inspection" (Annual Report for 1946); in 1956 it was increased again to 6 weeks.

Backing up these formal courses were programmes of tutorials, accompanied visits and positive reports on companies, which constituted learning "in the hard school of experience under the guidance of senior colleagues" (Annual Report for 1952).

6.4.3 ILO RECOMMENDATIONS

From the early years of this century the International Labour Office has concerned itself with the standard of labour

inspection. In 1923 it issued, as Recommendation 20, "Labour Inspection Recommendations", in 1947 appeared Convention 81; (ILO 1949) "the Labour Inspection Convention" and in 1955 the "Guide for Labour Inspectors". (ILO 1955).

These documents were strongly influenced by the British System (Annual Report for 1923) and their recommendations serve as a useful summary of opinion on the subject at government level. The 1923 recommendation stated;

"In view of the complexity of modern industrial processes and machinery, of the character of the executive and administrative functions entrusted to the inspectors in connection with the application of the law and of the importance of their relations to employers and workers and employers and worker's organisations and to the judicial and local authorities, it is essential that the inspectors should in general possess a high standard of technical training and experience; and should be persons of good general education and by their character and abilities be capable of acquiring the confidence of all parties".

It said they should be independent of change of government, paid enough to secure their freedom from any improper external influences, and be forbidden to hold interests in companies they inspected. It also specified that specialists be employed to look after problems of "dangerous materials, removal of injurious dust and gases, electrical plant and other matters." The 1947 Convention added that inspectors should be recruited "with sole regard to their qualifications for the performance of their duties".

The 1955 Guide called for the following:

"impartiality, personal authority and independence from improper external influences --- persons with a highly developed feeling for the human and social problems with which they have to deal and should carry out their duties with integrity, tact, intelligence and good judgement. --- The Inspector should have a knowledge of social and economic questions in general and their significance for the industries with which his work is concerned in particular, --- should be able by reason of his acquaintance with their practical problems, interests and circumstances, to speak with all sorts of people at their own level and in their own 'language'. The inspector must also, of course, be technically qualified by experience and training for his work. --- and in any case inspectors must possess a knowledge of the technology of the different branches of industry they deal with".

A later ILO document falls just outside the period under discussion, but will be included here for completeness.

The report of a 1967 conference of heads of health and safety services (ILO 1969) called for an inspector:

"--- possessing technical and medical knowledge, constantly brought up to date, completed by knowledge of such disciplines as psychology, work physiology which are, to a certain degree, integrated in the subject of ergonomics. Even more, the inspector must have a mind constantly alert to the effect that certain social situations at work can have on accidents; for example hours of work, payment methods,

training and professional qualifications and even conditions outside the place of work" (para. 29).

Later in the report (para. 76, 79) there was a list of qualities and training needs which included the following:

observation,
ability to adapt legislation to apply to particular workplaces,
ability to discuss with managers and workers,
ability to write precise reports,
integrity,
strong personality,
objective and authoritative in judgements,
deep knowledge of legislation,
vast knowledge of risks and of methods of prevention,
a general and sufficient knowledge of trades, processes and methods of working in order to take account of their effect on health and safety,
technique of inspection,
persuasion and supervision.

The report simply recorded disagreement over whether all inspectors should have a technical background and/or industrial experience without coming to any recommendations. The aim of training was summed up as follows:

"Training tries to give those concerned, not a complete knowledge of all methods of manufacture or of all machines, but a specialised knowledge of the safety and hygiene problems which are produced for people using these machines and processes. The inspector cannot know all applied processes, but he must be able to discuss with his

"clients" at their level" (para.80).

Much of the report is reminiscent of the discussion which will be set out in the next section, particularly in its greater emphasis on the social and organisational situation than was common before.

6.5 1967 - PRESENT

In 1967 an announcement was made in Parliament that the safety legislation was to be reviewed (Debate on Industrial Accidents 4.4.1967 Hansard v. 745, col. 1113-22) (see also Annual Report for 1967). This ushered in a new era, since from this review and the consultative document published in December 1967 as a result of it stemmed the movement which culminated in the Robens Committee and the 1974 Health and Safety at Work etc. Act.

At the same time there appears to have been renewed interest, evidenced in the Annual Reports, in the qualities and qualifications of the inspector. The 1968 Annual Report gave a specification for the inspector as follows:

"What sort of person becomes an Inspector? There is no precise specification against which a potential recruit may be matched and there is no previous experience which fits a person immediately for the role of Inspector. In general, the recruit is a university graduate or has good technical qualifications, preferably with industrial experience including some time at responsible management level. It obviously helps greatly if the recruit begins with a sound appreci tion of factory life backed by a wide technical background. He or she is generally in the middle or late twenties with the enthusiasm necessary to start a new way of life, but many

older recruits have also done well.

It is vital for an Inspector to be able to deal with people from the shop floor to the boardroom in premises as diverse as the smallest laundry and the largest steelworks and, moreover, to be able to communicate with them in the language of their own industry.

An Inspector has to have a thorough knowledge of the law and be able to explain it to management and workpeople. He must be prepared to resort to legal sanctions when necessary, but in general this is done only when reasonable persuasion has been tried and has failed. To persuade means to exercise patience and sympathy in one case and, in another, to show the degree of toughness necessary to shake a reluctant factory occupier out of an adherence to Dickensian conditions. Both approaches require tact and personality and no amount of technical expertise can adequately compensate for a lack of these qualities.

He must be able to work alone, often under arduous physical conditions, and make immediate decisions in challenging circumstances when the health and safety of workers are at stake. At the same time he must preserve a well-developed sense of humility. He cannot immediately expect to produce the answer to every problem which confronts him and he must be ready to admit the limits of his knowledge, knowing that the resources of the specialist branches are at his disposal."

In his 1969 report the chief inspector W. J. Plumbe contrasted this inspector with the early inspectors in 1833 whose only qualification was that they were "gentlemen". The theme was taken up in the reports of the new chief inspector B. H. Harvey particularly in relation to the role and training of inspectors. He concluded

his 1973 report with the hope that the inspectors had the image of being "dedicated, hard hitting and wholely professional".

The same theme emerged from a reply to a parliamentary question in 1971 (Hansard 11.2.1971 v.811, col. 232-3) where, in addition to the formal qualifications, emphasis was placed on maturity of outlook and judgement, interest in industrial affairs and industrial conditions, and a personality able to deal with people at all levels.

The Department of Employment's evidence to the Robens Committee talked of the following:

"personal authority and a mind which has been trained to assimilate and interpret a complex variety of information ---. Some mechanical understanding is necessary and an engineering background is a great advantage ---. Industrial experience is welcome but is not considered essential and an equivalent period spent in the Inspectorate itself is generally more valuable".

The Robens Committee in its report published in 1972 stated that most factory inspectors were graduates but less than 60% had graduated in a scientific or technical subject. The Department of Employment's evidence stated that of 464 general inspectors in post in August 1970, 133 had technical degrees, 112 equivalent technical qualifications, 195 arts degrees and 24 no degrees but wide industrial or services experience. The report shied away from firm statements on what should be the case:

"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". (Robens Committee Report p.69).

The Committee reported pressures on them (although the only published evidence that specifically mentioned it was that of the University of Manchester Insitute of Science and Technology) to recommend that all inspectors should have technical or scientific qualifications, and that many more should be recruited from industry. (evidence of the Medical Committee of Chemical Industries Association, Confederation of British Industry, Institution of Industrial Safety Officers, and Soap, Candle and Edible Fat Employers Federation). However they confined their recommendations to the following points:

(1) more specialisation was needed since the range of knowledge required was too great and employers needed to discuss their problems with "someone who is really familiar with the problems of their particular industry".

(2) Demarcations between specialists (or professionals) and generalists should be broken down. "We see specialisation as primarily a question of function rather than of formal qualification in the academic or narrow professional sence". "Experience and know how would often be more important than academic or technical qualification".

At the same time moves were already afoot to reorganise the inspectorate along the lines suggested, by creating industry groups to specialise in the main industrial groupings within geographical areas, and by outstationing specialists in field support groups (Annual Report for 1974).

In 1972 a report was produced by J. Teasdale, chief psychologist at the Department of Employment on the selection of Class II inspectors (Teasdale 1972). He used a critical incident technique to collect from IA inspectors examples of effective and and ineffective work. The performance factors he extracted were than given to Superintending and Deputy Superintending Inspectors to rate for relevance and desirability. The report concluded by suggesting lists of desirable and undesirable tendencies to be used as selection criteria (see Table 11). The report also suggested that tests of english usage, high level intelligence and mechanical/ practical understanding might usefully be incorporated in the selection procedure.

The recommendations on tests were left in abeyance for some years because "the tests suggested --- were regarded by the Civil Service Commissioners as not being of the appropriate level for the purpose". (Henderson & Cund 1975).

The study by Henderson and Cund, which evaluated the selection procedures for Class II inspectors in 1973 and 1974, showed that there was a strong bias in shortlisting towards candidates with scientific degrees (particularly Chemistry), but no particular bias towards those with works experience. Very few applicants with less than honours degrees were appointed.

In their interviews with selection board members the opinion was strongly expressed that personal qualities "such as intellectual capacity, experience of people, powers of communication, common sense and ability to be trained" were more important in their judgement of those shortlisted than scientific knowledge and directly relevant

TABLE 11

RESULTS OF RATINGS OF IMPORTANT CHARACTERISTICS TEASDALE 1972

DESIRABLE TENDENCIES

Good manners, cheerfulness, even temper, energetic.

Mature: has knocked about the world (preferably in industry) and has made use of his experiences.

Shows an interest in, and understanding of, the people he has met.

Shows capacity for abstract reasoning at a high level bounded by common sense.

Seems to have made a success of the things he has tackled.

Shows an interest in, and understanding of, practical/mechanical things, scientific technical processes he has come into contact with.

Interests of whatever nature followed up in some depth.

Wants to make a career in the Factory Inspectorate and has a realistic idea of what is involved.

UNDERSIRABLE TENDENCIES

Unconventional appearance or dress with a disinclination to modify it.

Gauche or bad manners.

Immature and inexperienced. Has led a wholely sheltered life and wishes to continue to do so.

Marked introspective tendencies.

Rather submissive.

Rather indecisive.

Life, affairs, rather disorganised.

Intelligent, but lacks common sense.

Impatient of, or lacks ability to handle, abstract concepts.

No interest in practical things, technical processes, industry or science.

Marked preference for office life, regular hours, even pressure of work, staying in one place.

Looking for an unexacting "second career".

Interests likely to clash with further study.

experience.

"They regarded it as easier to train such graduates (arts/social science) in scientific and engineering principles than to teach science graduates the art of communication.

A study, taking up Teasdales recommendations on the use of tests, was undertaken in 1976. (Beaumont 1976). A concurrent validation study showed only weak correlations between test results and ratings by the inspectors' assessment officers. Tests of "orderly presentation of ideas" and of "conciseness of expression" appeared to be predictive but not at a level which was of practical use without further development.

In view of the problems of measuring success in an inspector, and the disagreements over the job which are revealed in the results of my interviews (see below and Appendix 2) the lack of correlation is not surprising, and may reflect more on the inadequacy of the ratings than of the tests. The two tests which were at all predictive would be ones which would presumably predict the ability to write good reports, an attribute rated by the highest number, 33 out of the 51, of respondents to my interviews as a factor on which ratings were made, and also high on the list of desirable attributes in Teasdale's study (op.cit). However there was a clear dissatisfaction in my interview study with this criterion of effectiveness. It was commonly introduced with a preface such as:

"I would like to assess the man on his effectiveness at bringing about change in the factory, but the report he writes is the best we have".

The studies reported here appear to reflect a similar concern with

communication skills, personality factors and practical/mechanical interest which emerge from consideration of the other sources in this section.

6.5.2 TRAINING

At the same time as the Robens report was being prepared for publication discussions were underway to pave the way for the training of new inspectors at Aston University on the Diploma in Occupational Safety and Hygiene. This move, announced in the Annual Report for 1973, marked a recognition that the job had become, or was about to become much more complex.

"Sitting next to Nellie is not only a poor way to impart theoretical knowledge, it is extraordinarily disruptive of Nellie's work and so we are abandoning it. This means that the practical training necessary to become an inspector which of necessity must be done in the field can now be built upon a good theoretical understanding of the problems and should be a good deal more effective as a result. We have an expanding programme for specific training of experienced inspectors to keep their knowledge continuously up-to-date". (Report for 1973).

The M.Sc. course which was initially set up for the training was a distillation of received opinion and a concept of the job of accident prevention which I had developed from 5 years of experience in research into industrial accidents. The Diploma course content has subsequently been modified by experience of teaching, by the knowledge gained from this research and further discussions with the inspectorate's

training branch, and by the experience of those who have been course tutors. It still retains the original structure which divided the subject into the following:

(1) Safety engineering; covering mechanical failure, fire and explosion and the engineering control of danger from machinery (fencing) and from environment (ventilation, noise control etc.).

(2) Human safety; covering the aetiology of occupational disease and the measurement and biological control of health hazards.

(3) Individual and Organisational Behaviour; covering human factors in accident causation and the prevention methods involving changing of individual or organisational behaviour.

(4) Law; covering the procedures of the legal process and the interpretation of statutes, regulations.etc.

The full syllabus of the course as at May 1976 is contained in Appendix 11.

The inspectorate at no stage challenged the structure of the course as inappropriate, and it therefore represents a recognition on their part of the importance of one element of the job, the individual and organisational behaviour, which had not featured in earlier training. In 1976 the inspectorate's training branch produced their own list of knowledge and skills as follows: (Nattrass 1976)

(1) a knowledge of current legal requirements and how to interpret them.

(2) an understanding of industrial processes sufficient to identify the hazards.

(3) a knowledge of the nature of the hazards.

(4) a knowledge of relevant control methods (e.g. guarding, fire precautions, dust and fume control etc.)

(5) a knowledge of relevant control standards sufficient to ensure protection in an individual workplace, and uniformity throughout the country.

(6) a knowledge of remedial resources available to a firm (e.g. standing committees, trade associations, training organisations, Codes of practice, advisory literature etc.).

(7) techniques of inspection (e.g. how to proceed on a basic inspection, special visit, investigation etc.).

(8) how and when to use instruments, and to evaluate the results.

(9) when to seek assistance from a Specialist Inspector.

(10) when to involve another inspectorate/local authority.

(11) when to use sanctions/notices etc.

(12) how to communicate with people (e.g. colleagues, managers, trades unionists, lecture audiences).

(13) how to proceed when involved in an industrial relations dispute (e.g. when investigating a complaint).

(14) how to persuade and motivate people (e.g. convincing management of the importance of safety and health).

(15) how to evaluate management policies and organisations, supervisory and training systems, safety committees etc.

(16) how to write reports, letters etc.

(17) how to collect evidence, submit a Prosecution Report, issue a Notice, conduct a case etc.

(18) how to train a new inspector.

(19) knowledge of organisational/departmental procedures within HSE.

(20) managerial skills (i.e. at a later stage in an

inspectors career).

6.6 ANALYSIS OF INTERVIEW AND RELATED DATA

6.6.1 QUALIFICATIONS OF SERVING INSPECTORS

The qualifications of inspectors in post, including headquarters staff, at August 1975 when the research commenced are given in Table 12. The columns headed "Age at Entry" give some indication of whether the inspectors had had industrial or other experience before entry. There is no indication of whether inspectors who have left the inspectorate were of comparable qualifications or age at entry, and so these figures must be treated with care as indicators of recruitment policy. They are however an accurate representation of the mix of inspectors in post.

The patterns which show up are of a shift from a graduate group with approximately 50% non technical or science qualifications, but some post degree experience* among the senior ranks, to a mixed cadre of young non science graduates and older experienced non graduates in science and engineering among the middle ranks, and finally to a mixed age graduate science and engineering cadre among the recent recruits.

Table 13 shows the pattern of recruitment in the years from 1973 onwards who attended the Diploma course at Aston.

The pattern is very similar to the recent recruits in Table 12; science or engineering graduates of a mixed age group. There is a slight shift to an increase in

* For some this would have been only war or national service.

TABLE 12

QUALIFICATIONS OF SERVING INSPECTORS -- AUGUST 1975

		CI/DCI	SI/DSI	IA	IB	II
Level	Unknown	0	1	0	2	0
	Degree	6	35	106	124	69
	Prof./Tech. Qual.	1	4	20	61	9
	Other	0	1	8	4	2
	None	0	0	5	2	0
	Total	7	41	139	193	80
Subject	Science	2	9	25	70	38
	Engineering	0	10	38	64	30
	Social Science/ Economics/Law	1	10	35	26	5
	Arts	4	11	36	29	7
	Total	7	40	134	189	80
Age at Entry	U.K.	0	0	1	0	0
	21	0	0	0	21	8
	22	0	1	3	29	13
	23	1	3	12	15	8
	24	2	8	26	16	11
	25	1	7	11	15	15
	26	2	9	26	15	6
	27	0	2	15	15	6
	28	1	2	8	13	6
	29	0	1	10	8	4
	30	0	4	10	12	0
	over 30	0	4	17	34	3
	Total	7	41	139	193	80

TABLE 13

QUALIFICATIONS OF RECRUITS 1973-1976

ATTENDING DIPLOMA IN OCCUPATIONAL SAFETY

AT ASTON UNIVERSITY

		1973	1974	1975	1976	Total
Level	Total	21	57	59	69	206
	Degree	20	50	57	54	191
	Prof./Tech. Qual.	1	7	2	5	15
	Other	0	0	0	0	0
Subject	Science	8	28	29	29	94
	Engineering	5	23	22	30	80
	Social Science/ Economics/Law	3	4	8	9	24
	Arts	5	2	0	0	7
Industrial Experience	Yes	7	47 (9*)	35 (6*)	41 (5*)	130 (20*)
	No	14	10	24	28	76
Age at Entry	21	3	3	4	1	11
	22	4	9	11	7	31
	23	4	2	3	4	13
	24	3	6	5	6	20
	25	2	13	8	7	30
	26	1	9	3	5	18
	27	2	7	7	6	22
	28	2	2	4	14	22
	29	0	3	4	9	16
	30	0	2	6	1	9
	30 over	0	1	4	8	13

* Research only.

social science degrees and to an increase in age at entry, indicating more industrial experience in the group.

The more recent entrants resemble the ideal recruits of the parliamentary questioners of the 1950's and 1960's (see above).

6.6.2 DESIRABLE QUALITIES OF RECRUITS

Appendix 2 contains the tables of qualities and qualifications indicated as desirable by the interviewees (Tables 6, 7, 9, 10, 11).

From Tables 10 and 11 it is clear that the commonest picture that emerges of the qualifications and experience of an ideal recruit is of a graduate preferably with a science or engineering degree andwith industrial experience. The last two are far from unanimous conclusions.

The picture of character, interests and ability which emerges from Tables 6, 7, and 9 is similar in many respects to that produced by Teasdale's study (Table 11 above). The picture is extended somewhat by the addition of atrributes such as persuasive,self confident,able to get on with people, independent and tactful. These reinforce the view that the ability to make decisions on one's own initiative is important for the job. They also add the ability to communicate with and get on with people as a vital aspect of the work.

6.7 DISCUSSION

From the analysis of the literature sources and the interview material a number of preoccupations or themes emerge:

(1) Bias and partiality,

(2) Ability to communicate and get on with people,

(3) Knowledge of a technical nature.

6.7.1 BIAS AND PARTIALITY

This was a preoccupation from the very beginning of the inspectorate. The reason for setting up an inspectorate was the feeling that no group in existence would have an interest in seeing the laws obeyed because all groups were biased (1833 Commission Report).

The early years of the inspectorate were marked by the sometimes virulent attacks on the inspectorate for bias either against the workers, e.g. over the affair of spying on Chartist meetings (1840 Commission evidence) or against the manufacturers, e.g. over the fencing controversy (Thomas 1948).

Much of the agitation of the TUC and the Labour Party over workmen inspectors was directed towards the imagined bias of the inspectors towards management brought about because the two were from the same social class and background.

Impartiality has been a claim that successive chief inspectors have made as a basic defence of the inspectorates' position and function (e.g. Annual Reports for 1936, 1972). This can be traced clearly to the inspectorate's concern

with standards. It would be expected that as the amount of discretion allowed to the inspector increased, so should the concern expressed about the possibility of bias. As was discussed in Chapter 5 there has been an increase in the number of standards which the inspectors have to set for themselves (C PS). The increase has not been continuous. It has been marked by large additions as any new area has come under regulation, followed by some subtractions as standards have been laid down either in statute or in internal instructions. However there have always been, in each area, residual standards left to the inspector's discretion which have resulted in a continuing expansion of that discretion.

The concern expressed for a uniform administration of the law is another facet of this concern with bias. This has been built in since the 1833 Act with its provision for regular meetings between inspectors to secure uniform rules and enforcement practice. It was an underlying motive in the concern over the lack of prosecutions by Stuart in the 1830's (1840 Commission Report), and was a factor in the recommendation of the 1876 Commission for the establishment of a single headed organisation.

In present times it was a factor mentioned several times in my interviews, and considered as a specific function of specialist inspectors (see Appendix 2 Table 8).

The ideal of lack of bias, both in the inspectorate as a whole, and in inspectors as individuals is one which the inspectorate has been pursuing for the whole of its existence. It is an ideal which it has been criticised

for failing to adhere to in the past, particularly by the workers and their representatives. More recently the ideal has come under attack, with suggestions from some quarters that the inspectorate should as a matter of policy be deliberately biased towards the work force*. It is not a function of this thesis to consider the advantages and disadvantages of impartiality, merely to explore the consequences for the inspectors' job and training. The implications are partly for the personality of the inspectors, the ability to stand their ground, and to resist pressures, to be independent and not to require the approval of those they deal with to such an extent that they are willing to modify their values; and partly for the knowledge required; a deeper knowledge of standards than a simple rule learning, so that, given discretion, they are able to exercise it by modifying the standard they require to match the circumstances. This entails a knowledge of why the standards have been arrived at, and their limitations.

The discretion allowed to an inspector over the action to be taken following a detection of a breach is circumscribed by the system of vetting potential prosecutions which is operated by senior inspectors (see Carson 1970). However the very fact that any discretion is still allowed presents problems (see also Appendix 2 Tables, 4, 5). The implications for an inspector's knowledge lie chiefly in his understanding of how the available courses of action would be perceived and acted upon by the range of people

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* An article in Science for People (Craig 1976) was entitled "The Factory Inspectorate, Whose Ally?" and contained a paragraph which equated objectivity in making decisions on risks with bias towards management. See also a protest in New Scientist (McGinty 1975) over the rejection of the application of a member of the British Society for Social Responsibility in Science by the Factory Inspectorate.

he will be trying to influence. This entails a wide ranging knowledge of individual motivation and attitudes and of the organisational and cultural factors which influence and constrain them.

6.7.2 ABILITY TO COMMUNICATE AND GET ON WITH PEOPLE

From the time of the 1833 Act when the superintendents were only allowed beyond the counting house into the manufacturing parts of the mills at the discretion of the occupier, there has been a premium on tact, discretion and the ability not to offend people.

The ability to communicate can be sub-divided into three somewhat different facets:

(a) Collection of information in investigations etc.

(b) Imparting of information, influence and persuasion to occupiers and workers.

(c) Communicating with the inspectorate through written reports, letters etc.

It was the first of these, collection of information from workers, particularly complaints and evidence for prosecutions, that was the concern of those who argued for workmen inspectors and for women inspectors in places employing female labour. The argument ran that workers would only trust people like them, and that women would not confide their intimate problems to male inspectors.

Arguments over the ability to persuade managers made people from Horner, to Redgrave, to Ernest Bevin consider that inspectors should be of the same class or background

as the masters, and later works managers, with whom they had to deal. Redgrave used the same arguments to argue against workmen inspectors and women inspectors, and there were still voices raised, using the same arguments, against women as late as 1956 (J. C. George M.P. Hansard 16.7.1956 v.556, col. 856-927). Redgrave had a magisterial, almost military, attitude towards influencing work people. He clearly saw them as happy to accept orders from their superiors. This was perhaps better than Stuart 40 years earlier whose solution to the occupier breaking the law was to get him to sack the offending workman "the party truly blameable" (Stuart Report for December 1838). At a time when a new obligation has been laid on inspectors to communicate with workers representatives (1974 Act S.28.8) neither attitude of mind is a tenable one.

Inspectors now are faced with a much more acute dilemma than their predecessors. They need to establish rapport more completely with both sides of industry and can no longer adopt the position of Olympian social concern for their inferiors which was possible for, and characteristic of their predecessors. As suggested in the previous section, there is a feeling in some quarters that those who are not identifiably on the side of the workers cannot be trusted or fully communicated with. The ability to communicate and the underlying understanding of people's attitudes are therefore more than ever at a premium.

The reasons stated for wanting recruits to the inspectorate to possess industrial experience were more often ones to do with gaining an understanding of the people who worked there and the constraints under which they operated, than

to do with acquisition of specific technical knowledge (see Appendix 2 Table 11).

The ability to write reports and letters has always been a requirement for inspectors. It was one of Sprague Oram's complaints of workmen inspectors (Annual Report for 1893) that many could not write coherently. It was still evident in the comments of both senior inspectors and trainee inspectors in my interviews (see Appendix 2 Tables 4-7).

6.7.3 TECHNICAL KNOWLEDGE

As stated in Chapter 4 the inspectorate was, for its first 50 years largely an employment inspectorate enforcing legislation on hours of work which required little or no technical knowledge to understand. As safety became more important there was a comparatively rapid realisation that technical knowledge was required and by the beginning of the 20th Century the inspectorate was a largely technical body of engineers from whose ranks were drawn the specialist engineers who made up the engineering branch*. Medical knowledge was seen to be a separate specialism.

A distinction was drawn between technical knowledge and understanding coming from a training in science or engineering and practical experience of the industries under regulation (e.g. evidence to 1911 Committee). The inspectorate saw the former as something to be sought at the selection stage and the latter to be acquired largely in the process of doing the job. They were not unequivocal

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* The analogy with the organisation of the medical profession with a general practitioner and specialist consultants is striking.

about this however. The examination in sanitary science (later called safety and health) would on that model have logically come as an entrance requirement not at the end of the probationary two year period as it did from 1906 onwards. The defence against that argument was that the sanitary science examination was a test of practical application not theoretical principles. Even if this is accepted there is still the fact that the choice of optional subjects for entrance, from 1906-1925, and the degrees accepted for entry thereafter allowed non scientists to be appointed. At no time was a decision made to restrict the entry to technologists. The attraction of the bright arts graduate in the traditions of the administrative branches of the civil service always won the day against such a restriction.

A new phase began with the Second World War which brought an influx of less qualified, often non scientist temporary inspectors to cope with the extended jobs under the Civil Defence Act such as concern with blackout, air raid shelters, welfare etc. The male inspectors were not given any training (S.I. Conference Minutes October 1941) because they were put largely on this special work, while the women were only given the minimum of training. After the war a proportion of the temporary inspectors were made permanent (41 out of 87 in post in 1945 (information from monthly circulars)). There then followed a period when technically qualified graduates could not be attracted to the inspectorate as salaries were more attractive elsewhere. This raised a furore in parliament and the excuses put forward by successive governments sound extremely lame when read in context of previous, and later, comments. In no way could

the realities of recruiting figures showing 10% of entrants as having scientific qualifications be reconciled with the recommendations of the 1930 Committee that applicants should normally have science or technical degrees.

The Leicester course in basic technical subjects (not practical experience of industrial machines and hazards etc.) was an attempt to turn this excess of arts graduates into scientists, but with only 24 inspectors going through it in 2 years it only scratched the surface. Other pressures of short staff and increasing work load forced even that to be dropped.

The years from 1939 to the end of the 1950's saw the inspectorate losing ground on its technical competence while industry became steadily more automated and technically complex.

An attempt to plug the gap by taking on less well qualified engineers with more practical experience was judged a failure (interview evidence) because these recruits lacked the necessary literacy, intelligence and flexibility to cope with the work. It was therefore only in 1969 and the 1970's when a down turn in industry, coupled with a more favourable salary in the inspectorate, led to an increase in the recruitment of graduate scientists and engineers, that the position began to return to the state which had pravailed upto 1939.

As early as 1930 (Departmental Committee Report 1930) there had been a recognition that the range of technical subjects was too great to expect them all in a candidate at entry.

Electricity was singled out at that time as a subject which would need to be taught during training*. In 1939 (S.I. Conference minutes March) a superintending inspector (S. Hird) made a plea that inspectors should be taught the principles of machinery guarding rather than learning each machine by rote. This was a further recognition that the only hope of reducing the mass of detail to a manageable learning problem was by teaching underlying principles where these existed. With the further expansion of the importance of health hazards, and the increasing complexity of manufacturing processes this breadth of subject matter has become even more of a problem. The syllabus of the 6 month Diploma course (Appendix 11) indicates that even in a much extended course the coverage has to be selective and often superficial.

The need for technical knowledge was brought about by the steadily increasing involvement in the enforcement of solutions as opposed to standards (see Chapter 5), the parallel increase in the discretion allowed to inspectors in what were adequate standards of solution, and the slow changeover to an advisory body expected to generate specific solutions for particular problems. The move, particularly through the 1974 Act, to an involvement in organisational solutions has added a completely new area of technical knowledge to the inspector's training needs. He should now be able to assess and advise on the acceptability of different ways of achieving the end result of health and safety. To the knowledge of the principles and practice

*It is perhaps not a coincidence that this was also the subject which had been hived off to a specialist inspectorate branch since 1904.

of engineering, chemistry and industrial hygiene, the inspector must now add the principles and practice of management and organisation.

6.8 CONCLUSION

The implications of the changes in the inspectors' job over the years of its existence have been shown in this chapter to be as follows:

(1) A need for greater understanding of the basis for and limitations of the standards he is required to enforce.

(2) A need for greater understanding of the motivation, attitudes and organisational limitations of all sorts and levels of workers and managers in all sorts of employment.

(3) A need for knowledge of how those attitudes and motivation can be affected by the courses of action open to the inspector.

(4) A need for broader and deeper knowledge of the principles and practice of the processes used in industry, encompassing engineering, chemistry and industrial hygiene.

(5) A need for an understanding of the principles and practice of management and organisation.

The more the inspector is given discretion to assess an acceptable or reasonably practicable standard, and the more he is expected to advise on solutions as opposed to assessing proposed solutions the deeper his knowledge and skill in all these areas will need to become.

While it is not possible to say when the corpus of knowledge and skill required exceeds the capacity of an individual's learning power and memory, it is pertinent to say that the areas outlined above could be interpreted to encompass the jobs of at least an industrial hygienist, works chemist, works engineer, management consultant and industrial psychologist. Such an interpretation is clearly ridiculous since the training period of all these put together would amount to not less than 10 years, post school, even if all overlaps in subject area were eliminated. The next chapter will explore the mechanisms by which the job has been or could be limited.

CHAPTER 7

STRATEGIES FOR LIMITING THE JOB OF A GENERAL INSPECTOR

"We trained hard, but it seemed that every time we were beginning to form up into teams, we would be reorganised.

I was to learn later in life that we tend to meet any new situation by reorganising; and a wonderful method it can be for creating the illusion of progress while producing confusion, inefficiency and demoralisation".

Petronius Arbiter (of the Roman Army 210 BC)

7.1 INTRODUCTION

The previous three chapters have shown how the job of an inspector has grown in breadth and depth and how this has made demands upon the knowledge and skills of an individual which now seem to be beyond the capacity of any one person to fulfil. This chapter considers the methods by which the job of the general inspector has been limited in the past and classifies them according to the three dimensions which were derived for the analysis of the job (Scope of Hazard, Stage of Solution, Level of Discretion) (Chapter 3). Parts of the sections are of a more speculative nature and indicate the choices which are open for further limitation of the job to bring it within manageable bounds.

7.1.1 PHYSICAL AND INTELLECTUAL WORKLOAD

There are two aspects to limitation of the inspectors job, the intellectual dimension of job variety, complexity and difficulty, and the dimension of workload, represented by the number of workplaces under inspection. The former is the primary concern of this thesis, but the problems associated with the latter are to an extent interrelated with it, in that, the more places an inspector has to visit, the less time can be spent in each one and hence the less can be expected to be part of the job on the intellectual dimension. A solution to this problem is the employment of more inspectors. This has been the subject of parliamentary debate since the extension of the factory legislation in the 1860's (see Appendix 8 for list of questions). The cadre of inspectors has been increased steadily throughout the inspectorate's history (Table 14). In the sections below the question of numbers of inspectors will recur, but it is not the intention of the thesis to explore it directly.

7.1.2 HIVING OFF

I suggested in Chapter 3 that the role of a government inspectorate in health and safety had to be seen against the background of the overall objectives of health and safety. The implication was that the question of the role could be answered in terms of "how much of this should an inspector do?". The previous discussion has shown that the inspector has done more and more as time has gone by. The obvious answer to limitation of the job is to say that he should do less and less. Unless there are any parts of the overall objectives of which it can be said that

TABLE 14

AUTHORISED CADRE AND NUMBERS IN POST

FOR EACH 10th YEAR 1833-1975*

Year	Cadre	In Post	Year	Cadre	In Post
1833	9	4	1910	200	138
1840	19	19	1920	237	163
1850	19	16	1930*	229	207
1860	19	15	1940	343	343
1870	39	36	1950	380	318
1880	52	48	1960	448	388
1890	55	46	1970	735	700
1900	137	92	1975	900	807

Full figures are contained in Appendix 13.

* Ireland gained its independence in 1922 causing the loss of 6 posts.

nobody should do them, this means that someone else, apart from the general inspector must be found to take on the task.

It is convenient to discuss the hiving off of parts of the job using the three dimensions of scope of problems, stage of solution and level of functioning set out in Chapter 3. Within these three dimensions another division suggested itself, that between hiving off the parts of the job to other organs of the central or local government inspection and advisory apparatus, and withdrawing government intervention from parts of the job altogether, leaving them to the "private sector", i.e. the inspected firms, employer's and employee's bodies, insurance companies or other outside experts. The philosophy of the Robens Committee Report (1972) fits clearly into the second option, to which the report gave the title "self-regulation".

"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 crucial. Our present system encourages rather too much reliance on state regulation, and rather too little on personal responsibility and voluntary, self generating effort". (Report of the Committee 1972 p.7).

7.2 SCOPE OF HAZARDS

Limitation of the inspector's job on this dimension can be envisaged in two ways, the loss of whole technologies or industries, and/or the loss of certain problems or hazards across the whole of industries covered. In either event limitation, to reduce the intellectual

load, must involve complete handing over to another group of people.

7.2.1 SPECIALISATION BY INDUSTRY

Some industries have never been within the remit of the factory inspectorate. Mines have always come under a separate inspectorate as have agriculture, nuclear installations, and off-shore oil installations. The reasons why certain industries or problems were not given to the factory inspectorate are beyond the scope of this thesis, but they can be sought in the division of labour between government ministries and perhaps also in the estimates of the specialist knowledge required to carry out inspection in particular industries. (see e.g. Redrave's Report of October 1869).

The dividing lines between inspectorates gave rise to some demarcation disputes (e.g. over quarry workings with the Mines Inspectors). The Robens Committee Report (pp 10-11) made much of these disputes, citing in support the Dudgeon's Wharf Report (1970) and the failure of different bodies to agree on administrative machinery to control the use of dangerous substances. In its recommendations the Robens Committee proposed the amalgamation of inspectorates into one body. This was done, to create the Health and Safety Executive (H.S.E.). However the problems that such amalgamations remove are only administrative ones, not ones relevant to the limitation of the knowledge or skill of an individual inspector. Indeed if amalgamation is followed by greater flexibility of boundaries or greater transfer

of individuals across boundaries* the scope of knowledge and skill is increased not decreased.

Since 1974 the factory inspectorate has gone through a progressive reorganisation to divide its operations into larger geographical areas within each of which groups of inspectors have been set up to concentrate on particular industry groups (as defined by the Standard Industrial Classification). This attempt to limit the scope of problems of the general inspectors by specialisation within the inspectorate is not the first. The original specialist branches, of Textile Particulars and Cotton Cloth Factories, operated as limiters on this dimension. In some ways the early work of the Electrical Branch could be seen as a removal of certain areas of inspection entirely from the general inspectors. The branch only later became much more a conventional specialist branch, similar to the Engineering Branch, to whom particularly difficult problems were referred.

In a similar way the Inspector's Assistants and the Lady Inspectors were used in their early years to concentrate on specific problems or industries. The assistants (under a superintending inspector J. B. Lakeman) were particularly concentrated in London to control the sweated industries and outworker registration, and to provide a flying squad for the rest of the country to deal with the same problems

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* Max Madden M.P. received the following reply to a parliamentary question in which he asked why no limits had been set on the authority of any inspector within H.S.E. "This allows the experience, skill and training of individual inspectors to be properly applied in the exercising of their powers". Hansard 2.12.1976 v.921, col. 240-1.

(Annual Report for 1892). The Lady Inspectors performed the same task for women's workshops, and laundries, and also became concerned later with the sweated trades such as dressmaking. When docks and wharves first came under the jurisdiction of the inspectorate (1895) it was the assistants who were by and large told off to do the inspections.

The hiving off of industries or types of workshop to the assistants and to the lady inspectors was motivated largely by a desire to shed workload. This may have been backed up by a feeling that women could communicate better with women, and working men with small workshop owners, but largely it appears to have been an attempt to get rid of workshops and tasks which the general inspectors considered menial (see also the Evidence to 1911 Departmental Committee). The same motive would appear to have been operating when the assistant grade was reconstituted to look after the premises under the Offices, Shops and Railway Premises Act 1963 and other small premises. At the present time my interview material clearly indicates that the trainee Class II inspector is often treated in a similar way, being sent to cut his teeth on the small, low-hazard premises, known colloquially as "the rabbits".

The other previous organisational division by industry was the creation of Construction Divisions in 1967 to look after construction and civil engineering sites. These divisions were staffed largely by people recruited from the construction industry; a recognition that this specialisation was for reasons of specialist knowledge and skill, not simply a means of off loading menial work. The development was a forerunner of the 1974 reorganisation into industry groups

and as such as been absorbed more or less intact into it. However the policy of recruiting construction experts directly into the groups has not continued,* and all newcomers now enter through the normal Class II entry.

The industry group specialisation has only been possible to a limited extent, because of the spread of industries throughout the country. Hence in each of the areas there are usually only 3 or 4 narrowly defined groups, e.g. chemical, foundries, shipbuilding etc. plus a general manufacturing group which takes the rest of the industries. So, although some inspectors can limit their knowledge and skill requirements on the technical dimension considerably, others have nearly as broad a job as before. Also the policy that inspectors will be moved between groups at intervals means that the need for the technical knowledge is not removed, merely postponed. This confers some advantage, since it allows training to be spread out and memory to be stretched less at any one time, but it is not a total gain. At the same time, as Table 3 Appendix 2 shows, some inspectors in groups feel that they need to gain a deeper knowledge of the industries they are dealing with in order to proffer better advice, which may compensate for the loss in breadth of knowledge required.**

The arguments put forward for amalgamating problems under one inspectorate are based on elimination of demarcation

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* Such recruitment has continued into the headquarters construction branch.

** The implications of exchanging breadth for depth, for job satisfaction are intriguing in the light of current theories e.g. Herzberg et. al 1959, Vroom 1964.

and overlaps which cause two inspectors to visit the same premises. The arguments against such amalgamations and for specialisation are based on the specialised knowledge or special rapport required to inspect certain types of industry or to detect and correct certain sorts of problems. The scope for hiving off certain industries completely is somewhat limited. The only ones which logically seem to suggest themselves are those which are high in hazards or high in accidents, and/or geographically tightly concentrated, and/or require highly specialised knowledge to detect and understand their hazards. The only major candidates now within the factory inspectorate's ambit which might qualify on these criteria for complete hiving off would be the chemical and construction industries. Such a move would however be contrary to the centralising tendencies at present apparent in the H.S.E.

7.2.2 SPECIALISATION BY PROBLEM

As set out in Chapter 4 the inspectorate has lost some problems during its history. The main losses have been education, to the Education Inspectorate, matters of truck and particulars to the Wages Inspectorate, personnel management to the Industrial Relations Branch of the Ministry of Labour, sanitation and fire (both only partially) to local authorities.

7.2.2.1 LOCAL AUTHORITIES

The relationship of the factory inspectorate with local authority inspectorates has always been a stormy one since the local authorities were first entrusted with inspection of workshops in 1867

and so signally failed to carry out their duties (see Chapter 5 and Mess 1926.) The relationship finally settled into one in which the local authority dealt with general health provisions in non power factories, but only sanitary conveniences and fire certificates in power factories*. The division was described by the Association of Public Health Inspectors in its evidence to the Robens Committee (1972) as illogical. In that evidence the Association suggested that all health and hygiene matters should be dealt with by public health inspectors, leaving safety to factory inspectors (Evidence p.10).

The split as it works at present is far different from this. Fire matters, apart from those involving process fire risk have been hived off to the local authorities, but no change has yet been made in the dividing line over other inspection matters. The available evidence suggests that whatever new lines are chosen will be drawn on the basis of industries rather than problems, with the local authorities being treated much as the assistant inspectors or trainees and given "the rabbits" (e.g. Health and Safety Commission Report for 1975)

The result of the present split may be a diminution of the physical workload of the factory

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* The situation is made worse by a procedure which empowers factory inspectors to act in default of lax local authorities, and requires each authority to notify the other of breaches which come to their attention in premises allocated to the other authority.

inspector* but it is not a diminution of the intellectual load, since both he, and his public health inspector colleague have to have all of the knowledge and skill to understand and enforce the health and sanitation requirements.

7.2.2.2 EMPLOYMENT

There would appear to be some scope for further hiving off of problems. The inspectorate has only one major non-health and safety problem left in its care, the enforcement of legislation on periods of employment. This was once the major concern of inspectors, but has long since declined in importance (see Chapter 4). However the subject still presents a formidable load of problems for the inspector in memorising the very complex provisions and sorting out the legal aspects of their enforcement. The administration of the exemption orders and other certificates also presents a major load to the administrative side of the inspectorate, e.g. in 1974 there were 7068 orders and certificates in force (Annual Report for 1974).

The subject of the restriction of the employment of women by law is at present one of some controversy in the light of the legislation on equal opportunities** passed in recent years.

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* The notice procedure itself imposes some workload, e.g. 23,000 notices were sent to local authorities in 1920, and 3,000 in 1939 the last year when the figures were reported (Annual Reports for 1920,1939).

** Sex Discrimination Act 1975 c.65.

Some people are contending that no laws on hours of work need to exist (except to protect children and young persons) and that trades unions are able to limit hours effectively without government intervention (cf. Employment Protection Act 1975 c.71). Others argue that attempts to repeal such laws would be discrimination against women, and indeed that more government intervention is necessary, for example to extend protection to men over night work (Carpenter and Cazamian 1977, Coote 1975, G.B. Equal Opportunities Commission 1976, Hartnett 1974).

Whatever the merits of the arguments for or against government intervention in this area, the question as to which part of government should be involved can be raised separately. It would seem possible to hive off this area to another inspectorate e.g. the Wages Inspectorate (cf. truck and particulars) or the local authorities (cf. sanitation).

7.2.2.3 NEW PROBLEMS FROM AMALGAMATION

There are some problems which have never been part of the factory inspectorate's remit, such as emissions from factories (Alkali Inspectorate), explosives (Explosives Inspectorate) storage of petrol (local authorities). The amalgamation of the first two into the H.S.E. raises the same questions of flexibility or transfer across boundaries which were dealt with above in the section on specialisation by industry. Indeed if,

for example, factory inspectors are not now to be expected to take into account emissions into the atmosphere from factories in considering solutions to problems (e.g. dust control) inside the works, much of the advantage of amalgamation will be lost. New problems would appear to be inevitably placed within the requirements of factory inspectors' knowledge and skill.

7.2.2.4 MENTAL HEALTH

In Chapter 4 the possible inclusion of the problems of mental health and stress under the Health and Safety at Work Act was mentioned (see also Health and Safety Employment Medical Advisory Service Report for 1975-6)*. These are subjects in which knowledge is not in a codified form which would either allow standards to be drawn up relating work environment to the adverse effects, or standard advice on redesign to be given. It could be argued that such a state of codification is beyond the realms of possibility in any case, because of the importance of individual perceptions and expectations in mediating the adverse effects (e.g. Appley and Trumbell 1967 Cox 1978, Vroom 1964).

For these reasons the addition of such areas would represent a vast increase in workload which should

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* H.S.E. has also appointed a sub-committee to consider the subject and has commissioned research into it. (Great Britain Health and Safety Executive.Health and Safety Research 1976).

be resisted if the general inspector is not to be overwhelmed. There is in any case another government body, the Work Research Unit, which could form the nucleus of an advisory body on the subject without the involvement of the factory inspectorate.

7.2.2.5 WELFARE

There is anecdotal evidence from my interview material that some problems which formally come under the jurisdiction of the inspectorate are not placed high on the priority list of inspectors in their work and hence are often ignored. The problems are particularly those relating to welfare, provision of washing and sanitary conveniences, and provisions such as seating, which are seen as being concerned with comfort rather than disease or injury. This is a topic which requires more study, since there is ample evidence (e.g. Stanley 1975, Anderson 1951) that this conception is not correct. It does, however, represent an example of inspectors spontaneously offloading work on to no one else, i.e. quietly forgetting about it. The evidence of the British Chemical Industry Safety Council of the Chemical Industries Association to the Robens Committee (1972) can be adduced in support of the view that some of the welfare aspects are beneath the dignity of the factory inspectorate. They suggested a lower level inspector for such tasks. The boundaries in this area between welfare, comfort

efficiency and general health are far from clear, and there may be scope within what is often called ergonomics for a redrawing of boundaries to offload some problems from the general inspector onto other inspectorates, e.g. public health, or onto industry itself.

7.2.2.6 NOMINATED INSPECTORS

The system of nominated inspectors developed in the late 1950's and through the 1960's with the appointment of general inspectors to be responsible for dealing with certain hazards, e.g. noise, radiation, asbestos, wool, cutlery, power presses. This specialisation by problem did not however involve the complete hiving off of all consideration of that hazard to the nominated inspector. As such discussion of it fits better into the next section.

7.3 STAGE OF SOLUTION

Limitation of the general inspector's job on this dimension could be envisaged in a number of ways. The law as at present formulated constrains the possible limitations, since the inspectorate is charged with the enforcement of all of the law, and, as has been shown in Chapter 5, the law now draws the inspector into consideration of all stages upto and including organisational solutions. The discussion in this section will therefore be largely confined to possible hiving off of parts of the job within the H.S.E. Other limitations, which would require changes in the law, or would necessitate the inspectorate informally deciding to forget about parts of the law, are discussed in the final part of the section.

Table 8, Appendix 2 shows the concepts that my interview sample had of the role of the specialist branches within the inspectorate. A high proportion of the responses indicated that generalists saw the specialists as being concerned with the stages of detection of hazards and assessment of standards particularly in new, unusual or complex plant, at the design stage of processes and where detection or measurement required special instruments. Some responses indicated that the specialists were looked to for technical solutions, but the overwhelming impression from the responses is that general inspectors viewed specialists as a back up, if the first solution did not work, or when the problem was beyond the generalist's knowledge. This view seems to be parallel to the medical practitioner and the specialist consultant in the health service. It suggests a situation in which there is no limitation on the scope of the problems and solutions about which the general inspector needs to know, merely a limitation in depth and an implication of the importance of the inspector knowing the limitations of his own knowledge.

It is perhaps not surprising that questions designed to tap the existing conceptions of serving inspectors should not suggest more radical changes as means of limiting the general inspector's job. For those it is necessary to look more closely at the history of specialisation in the inspectorate.

There have been two somewhat distinct sorts of specialist branch. One which has dealt with a concentration and

refinement of knowledge in areas which were regarded as central to the work of the general inspector and which has been staffed by recruitment from its ranks. The engineering and chemical branches for most of their history have conformed to this pattern, and there are some indications that the Accident Prevention Advisory Unit does also. Entry into such branches could be seen as a natural progression for those suitably qualified general inspectors who wished to specialise. In these subjects the average general inspector became involved with all stages of detection of hazards, checking of standards and technical solutions, leaving only the more esoteric aspects of each stage to the specialists.

The other sort of specialist branch has been one dealing with problems outside the accepted central aspects of the general inspector's job and staffed by specially recruited personnel. The medical inspectors are the archetypes of this pattern, a separation backed by the strong hedges of mystique and legislation surrounding medical subjects. The electrical inspectors also fitted originally into this pattern, a classification again backed by the esoteric and intangible nature of the hazard with which they dealt. Where subjects conformed to this pattern of knowledge, the general inspectors have not tended to become involved in technical solutions, because they have been seen as clearly beyond him. In these subjects the generalist's involvement has therefore been confined to detection of hazards (and even here the specialist may have helped with the more complex measurement and calculation) and the checking of standards. In these subjects too, because the risks are less tangible and observable more specialist

knowledge has been needed to anticipate hazards from a knowledge of the likely functions or malfunctions of the process.

In recent years the distinction between the two types of specialist has been blurred by developments such as the recruitment of engineering inspectors straight into the specialist branch, the spread of the use of electricity and of specific hygiene hazards and the consequent removal of the knowledge about them from the highly specialist to the more general sphere, and the increase in complexity of chemcial, fire and explosion risks which have tended to move them into the more complex and technical sphere of knowledge. However there would seem to be scope for drawing boundaries using such a classification of specialism which would encourage more depth, and a potential career development in some specialisms, particularly industrial hygiene and engineering, and less depth in others such as chemical process, radiation and perhaps electricity. Inspectors on this argument would be encouraged to call in specialists at an earlier stage in the latter areas to do the hazard detection and to discuss technical solutions. This argument converges with that in the previous section on scope of problems where it was suggested that the chemical industry was a possible candidate for hiving off to a specialised inspectorate in its entirety.

The nominated inspector scheme fits into the same line of argument. General inspectors were nominated to be responsible in a division for specific hazards, to carry out specialised measurement e.g. noise, or to take on the more difficult problems over solutions, e.g. power presses.

This system provides the model for specialisation combined with career development which would allow specialised training to be concentrated on a few individuals and phased over an inspector's career, thus reducing the load on his memory and knowledge at any one time.

7.3.2 ORGANISATIONAL SOLUTIONS

Specialisation on organisational solutions as opposed to technical solutions presents a somewhat special case. This is a subject which, until the passage of the 1974 Act, the inspectorate had not considered a central part of its area of concern. The specialist branches set up in this area, (personnel management, canteen advisers) fitted clearly into my second category of peripheral specialist branches recruited from outside the inspectorate. The involvement of the general inspectorate was confined to broad generalisations (see Chapter 5). The Accident Prevention Advisory Unit (APAU) was set up in 1970 primarily as a research team to investigate the wide spread in accident rates within industries and divisionalised companies. (Annual Report for 1973). With the passage of the 1974 Act and the movement of the question of organisational solutions into the centre of the inspectorate's task the work of the Unit has changed somewhat (Annual Report for 1975). Its publication Success and Failure in Accident Prevention (Great Britain Health and Safety Executive 1976) represents a first attempt to lay down standards checklists and guidelines for general inspectors in tackling organisational solutions*. Much of its work in recent years has involved

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* The Unit has backed this up by issuing guidelines to inspectors in Factory Inspectorate Codes.

the collection and presentation to the boards of selected divisionalised companies of data on the safety performance and organisation of their subsidiaries, in order to stimulate corporate action. The presentation of performance data alone is not a departure from the traditional work of the general inspector; all that differs is the presentation to company headquarters management not to local factory management (a practice made difficult or impossible previously by the highly divisionalised and autonomous organisation of the Inspectorate). When data on organisation, communications and other management functions is also collected and presented there is a clear departure from previous practice.

There is no suggestion in the way that the Unit and the general inspectorate have so far operated that the Unit should relieve the general inspector of all concern with organisational solutions. It is still envisaged as a specialist task force to tackle large combines.

At present no facilities appear to exist for the members of the Unit to be called in, as engineering or chemical inspectors are, to back up the general inspector. The fact that management, psychology and industrial relations together were the most commonly identified gaps in specialist advice available within the inspectorate in my interview sample*, may be taken as some indication that the work of the Unit should be expanded in this way, so that some work can be removed from the general inspector's shoulders.

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* The fact that this was still only by 6 members of the sample should be taken into account when assessing this suggestion.

7.3.3 DISCUSSION

It is clear from the discussion under this subsection that the various ways of specialising within the inspectorate have only a partial effect in limiting the general inspector's job. So long as the law is written in terms of adequate and practicable solutions all that can be done to support the general inspector is to provide him with specialist sections to which to refer the harder problems. He therefore still needs a large amount of knowledge, at least at a superficial level across the whole spectrum of hazards and management solutions. Only if all concern with solutions in a particular area could be removed from the job would there be a significant reduction in the intellectual workload. The next section discusses this possibility briefly.

7.3.4 SELF REGULATION

One interpretation of the Robens Committee's oft quoted concept of self regulation is that government should only be concerned with checking whether industry achieves acceptable results and maintains acceptable standards, not with how those results are achieved. This interpretation would encourage the inspectorate to concentrate on activities such as environmental monitoring, monitoring of accident rates or other indices of safety performance, and the detection or diagnosis of danger. Their response once non-compliance had been established would be confined to education on what standards should be reached, persuasion to allocate resources to achieve compliance and prosecution or other enforcement action to punish non-compliance. This description is very similar to the original reasons

for setting up an inspectorate. (1833 Commission Report). In this conception the problems of devising a technical and an organisational solution would be firmly placed upon industry and the inspectorate would be placed in a policing role.

Such a conception is nearer to the suggestions of some trades unionists (see e.g. evidence of W. H. Thompson to the Robens Committee 1972) than to that of bodies such as the C.B.I., and the Chemical Industries Association (see their evidence to the same Committee) who wanted inspection to be advisers or consultants. The interpretation that the chief inspector at the time (B. H. Harvey) put on the term self regulation can be seen from his Annual Report for 1973.

"the role of the Inspectorate must be to ensure that industry is aware of the problems which need to be solved, that it has the will to solve them, and above all, it has an organisation to translate that will into effective action".

This interpretation adds the monitoring of organisational solutions to the tasks of detection and enforcement which I arrived at above. It is interesting to note that there is no specific mention of the inspector becoming involved in the technical solution itself.

The argument can be simplified to a discussion of which combination of three basic roles the inspectorate should concentrate on:

(1) Diagnosis of danger and detection of non-compliance with standards of levels of danger,

(2) Assessment of technical solutions,

(3) Assessment of organisational solutions.

The basic theme of this thesis is that all three cannot be satisfactorily combined in one person. The options are to establish a two or three tier inspectorate, or to hive off one or more activities to industry. Potential locations for such a hiving off are the safety representatives for the first task, and the health and safety profession, or technical and management consultants for the last two. This point is taken up again in the general discussion to this chapter (see also Atherley and Hale 1975, Glendon 1977 Barrett 1977).

The essential point to be made for the theme being developed here is that only such drastic reallocations of role could assist in limiting the inspector's job significantly on this dimension.

7.4 LEVEL OF DISCRETION

Limitation of the inspector's job on this dimension would take the form of confining his role to a rule learning level by removing problem solving activities from the job as far as possible. This would involve the removal of discretion from the individual inspector, and the specification of standards and solutions by other people. The points at issue are related to the ones in the last section and make together the debate over enforcement or advice as the central role of an inspectorate.

7.4.1 REDUCTION TO RULES

The monthly circulars and later the Factory Inspectorate Codes, together with the products of the inspectorate's information branch contained in the area office files represent one strategy for limiting the inspector's job on this dimension. Through these publications the general inspector in the field is presented with definitions of acceptable standards, package solutions in terms of approved courses for producing competent persons, designs of guards etc. and guidance on priorities to be set and action to be taken in particular cases. The inspectorate's own policy and specialist branches contribute to this literature and so function to limit the general inspector's job. Outside experts and professional bodies also function in the same ways through the rules and codes of practice which they produce.

The specialist inspectors are seen in the problem solving role by many inspectors (see Appendix 2 Table 8 for interview results), who call upon them for advice or a visit when they meet a problem which is out of the ordinary, i.e. for which there is no standard solution. Total reduction of the general inspector's job to rule following would, however, only be possible if it were feasible to reduce all standards, priorities, actions and solutions to hard and fast rules. To the degree that that is not possible or practicable, the general inspector must be given the knowledge and skill to go beyond the rules and modify them to fit the individual cases which confront him.

Reduction of Standards to hard and fast rules is practicably possible in some hazards areas (see e.g. Technical Data Note 2 (Great Britain Health and Safety Executive) for standard threshold limit values for some hazardous substances). The question of whether the standards should be used in this way opens up arguments beyond the scope of this thesis. (see e.g. Atherley 1978). It is possible to envisage a system whereby the inspectors enforced compliance with such minimum standards, and any attempts to improve the level of safety beyond this were assigned to the mechanisms of employer/employee bargaining, or to the efforts of a health and safety profession.

In other areas standards are very hard to lay down in the same way. In the area of machinery dangers one of the commoner complaints of inspectors in my interview sample was the apparent lack of consistency in standards between industries (Appendix 2 Table 4), so that simple rules such as "all inrunning nips must be guarded" would not work. The acceptance of such variations is so ingrained in the relationship between industry and the inspectorate and is based on such plausible reasons as accident experience, that it is not feasible to suggest that the variations should be removed. It would however seem a feasible proposition, and one not far from existing practice, to suggest that the job of the specialist engineering inspectors should be to compile as exhaustive standards as possible for all machines indicating which parts should be guarded, thus reducing the problem solving load of individual inspectors. This plus teaching of the simple rules of thumb, and a back up specialist advice service for new and one-off machines would go far to answering the needs of

limitation in this area.

In areas where standards cannot be laid down, either because of a lack of understanding of the mechanism of harm e.g. some toxic and carcinogenic materials, or the complexity of the harm process e.g. manual handling of articles, mental stress, the alternatives are either to train inspectors more or to make specialists responsible for these areas.

Reduction of Technical Solutions to rules is perhaps harder than reduction of standards because there are more variables in the circumstances in which they will be used which have to be taken into account. Some such reduction has been practiced since the 19th Century by the inspectorate in their practice of illustrating guarding solutions in annual reports and in published booklets (see Chapter 5). A careful distinction needs to be drawn here between suggestion of possible solutions to try or to use as the basis of modification, and the advice that such and such a solution will produce an acceptable result. The former is merely a helpful suggestion to be subjected later to the test of whether the solution results in the attainment of the acceptable standard; the latter is a transfer of the test of acceptability from the end to the means. The difference is the one between the illustrations in a booklet on personal protection and an approved design of respirator.

When it comes to organisational solutions the scope for reducing them to rules is severely limited by the

disagreement among theorists over which solutions are effective, and the great range of variables which affect the success of a solution. These factors render management consultancy a complex science requiring much knowledge and practical experience. The nearest that it is possible to come to rules is perhaps a checklist of functions which have to be carried out in an organisation, and general guidance on the factors which influence the choice of a solution.

Once rules have been defined as far as possible two questions arise:

(1) Is the corpus of rules too bulky for any one person to memorise?

(2) What provisions are there for coping with the exceptions to the rules?

7.4.2 INFORMATION SOURCES

The answer to the first question above is clearly in the affirmative judging from the responses to my interviews. Many inspectors echoed the words of the chief inspector Dr. Whitelegge in his evidence to the 1911 Committee on Accidents:

"In whatever capacity he worked he would not know the whole of the Factory Acts at the end of ten years. I myself plead guilty to not knowing them exhaustively. I have to refer to them constantly".

If that applied to the Factory Acts in 1911, how much more must it be true of the technical data stored in guidance notes, files and codes at the present day. Availability and accessibility of records of this sort has already reached a stage where inspectors are complaining of it as a problem (Appendix 2 Table 5). Any implementation of the suggestion of the Robens Committee report to replace regulations with codes of practice can only exacerbate the problem.

7.4.3 AVAILABILITY OF ADDITIONAL MANPOWER

The second question above implied that the general inspector should perform at the rule following level and that the exercise of discretion and problem solving engendered by exceptions should be hived off to others. It is however worth noting that an alternative solution would be for the rule following/ compliance testing to be given to a lower grade of inspector (cf. assistant grades of inspector, or the compliance officer working under the Occupational Safety and Health Act in the United States) or to the trades union safety representative) (cf the system operated in Russia (Kelly 1973)), while the general inspector was left to concentrate on the exceptions.

Assuming that the alternative solution is not viable the only candidates for the problem solving manpower are specialists within the inspectorate, or experts employed by industry either full time or as consultants. It is noteworthy that large firms are more likely to be able to

afford to employ specialists* and are also more likely to be unionised, and, on the arguments in this section, are therefore more capable of total self regulation than small firms. This line of argument could lead to a reappraisal of the policy of the inspectorate over the past few years (see Annual Reports 1970-1975) of concentrating on large firms. If such firms could be positively induced to become more selfregulating the inspectorate's attention, as advisers, could be turned to the smaller firm, leaving the larger firms to be monitored and controlled by a more detection and enforcement oriented part of the inspectorate.

7.5 GENERAL DISCUSSION

The foregoing sections have explored the scope for limitation of the general inspector's job on the three dimensions used in the thesis. The guiding principle has been the need to reduce significantly the potential intellectual workload on any given inspector. The main themes which emerge from the discussion are as follows:

(1) There is some scope for reducing, or at least preventing from expanding the number of hazards or problems that the inspector has to cope with, by shedding such problems as employment and some aspects of welfare and resisting the importation of such problems as stress.

(2) There is room for consideration of the creation of genuinely specialised branches of the inspectorate to take over some industries completely, e.g. the chemical industry, in much the same way as the nuclear industry and the mining industry are separate.

(3) The basis of specialisation is in need of clarification. Some inspectors specialise by industry, some by hazard,

some by process or machine, some by stage of solution. Transfer between specialisations already presents problems (interview material Appendix 2 Table 8) within the specialist branches. Problems are to be anticipated with transfer between industry groups. In terms of the knowledge and skill required of an inspector some transfers are more difficult than others (e.g. a social scientist inspector transferring from a services group to a Chemicals groups would have far more training needs than a chemist making the transfer to the same group from a food industry group).

(4) The theme of job progression from general to specialist functions has been mentioned as a possible stratgey for coping with some aspects of the problems raised*. This theme links with the wider question of job satisfaction for the inspector which has hovered on the fringes of this discussion. Reduction of the job to enforcement and rule following has to be limited by the likely effects of routinisation and bureaucratisation on the satisfaction of personnel recruited to a job by advertisments which emphasise independence, responsibility and challenge.

(5) There is scope for hiving off parts of the inspectors' potential task to industry or non government specialists. This would require either a change in the wording of statute, or a tacit acceptance by the inspectorate that they were going to limit their activity well within the boundaries

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* The analogy with the National Health Service structure is striking. The implications of a National Occupational Health and Safety Service are beyond the bounds of this thesis.

of the law. The main potential recipients of the hived off workload would be on the one hand safety representatives and on the other a health and safety profession with similar training needs to the inspector but with the opportunity as individuals to concentrate on and learn about in depth a far smaller range of problems at any one time because of their employment by one firm.

To relinquish the policing functions to safety representatives would require a considerable reorientation of policy by the inspectorate and the acceptance by them of a role more akin to arbitration than in the past (Hartley 1972). It would also raise sharply the question of non unionised premises and the problems of training safety representatives to the necessary standard to carry out such a policing role.

To relinquish some of the problem solving and solution development functions to a health and safety profession would require a far more concerted effort by government to encourage the development of such a profession than has been apparent in the past (Atherley and Hale 1975).

(6) Whatever is not removed from the inspectors' job by the strategies discussed in this chapter will remain the objectives from which his training needs must be derived. It is suggested that the more his job ultimately contains concern with technical and organisational solutions and the more it requires him to operate at a problem solving level, the greater will be those training needs.

It may be appropriate to try and cater for some of the needs by selection rather than training. For example the increased concern with technical matters and with solutions to problems may suggest that the time when an Arts graduate could be successfully trained to the appropriate level are over. From Chapter 6 the influx of Arts graduates after World War II can be seen as a temporary retreat in a clear trend towards an inspectorate which is all science based; a retreat brought about by the war, low salaries and demand for technical graduates in industry. Had such a retreat not occurred it is conceivable that the inspectorate would have been an all technical body some years ago. However the introduction of organisational solutions, if these are to stay, makesan exclusively technical body inappropriate by introducing the need for skills found in the social scientist.

The increase in the importance laid on a communication, advice and arbitration role for the inspector places more emphasis on the value of first hand experience of the realities of industry through industrial experience.

What cannot be selected for must be trained. The discussion in this chapter has suggested that some relief can be gained by phasing the training through a longer period in the inspector's career as he changes from group to group or specialisation to specialisation.

However, no matter what limitations are imposed the training load remains formidable, (see Appendix 11 for the minimum syllabus). It is instructive to compare the specialised formal training time of an inspector of factories (6 months +

isolated weeks on e.g. law or specialised IB standing courses) with that of a public health inspector (a 4 year sandwich degree course, or a diploma course of 4 years 2 days a week or 3 years sandwich)*. The two jobs are increasingly similar in scope and complexity; indeed the factory inspectorate has traditionally looked down on his public health colleague as a junior. Yet the public health inspector's specific training is longer.

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* See the evidence of the Association of Public Health Inspectors to the Committee on Safety and Health at Work 1972 vol.2 pp 7-18.

CHAPTER 8

CONCLUSIONS AND FURTHER RESEARCH

8.1 CONCLUSIONS

This research set out to gain an understanding of the job of the general inspector of factories and of the sort of person he should be, or become as a result of his training. In the event the conclusions of the thesis are directed more at the role that the inspectorate has played and might play in health and safety at work, and the implications of the possible roles for the original research questions. Definitive answers to those original questions must wait on the outcome of decisions on the role to be played.

The main conclusion of the thesis is that the history of the inspector's job is one of increasing difficulty on three dimensions:

(1) The scope of the hazards of concern to him,

(2) The stage of intervention in the process of problem definition and solution,

(3) The level of functioning, requiring generation of solutions to problems rather than rule following.

The 1974 Health and Safety at Work etc. Act represents a major step further along all these dimensions and hence a deeper involvement of the inspector in industry.

The main characteristics of legislation generally which produce the increase in scope of the inspectors job have been shown to be the incorporation of previously unregulated employment under statute, the writing of provisions in terms of solutions to hazards rather

than standards to be achieved, the use of words or phrases which qualify the absolute nature of standards or solutions, and the allowance of exceptions to rules.

The implications of the increased scope for the qualities required of an inspector have been shown to be great. In the three areas of impartiality, knowledge and interpersonal skill and particularly in the last two the requirements have now become so wide ranging that the corpus of knowledge and skill may be beyond the capability of any one individual to acquire and retain.

The implications for the training of inspectors are alarming. Without some limitation being placed upon the job no course of training can in practice equip a general inspector for the whole job.

The inspectorate has adopted a number of strategies in the past to limit the boundaries of the general inspector's job. These have consisted of hiving off parts of the job to other people. These strategies can be classified according to which of the three dimensions (as discussed in this thesis) they have attempted to limit. The discussion shows that there is scope for limitation by further hiving off of problems to other government bodies, and by resistance to inclusion of any new problem areas. Some further scope also exists for specialisation along all of the dimensions discussed.

The concept of self regulation by industry advocated by the Robens Committee has also been examined. Analysis shows that the legislation which ostensibly followed from the Committee's report has produced an increase, not a decrease in the involvement of central government in industry in this area. It is concluded that, only if a more conscious policy is adopted of encouraging and developing groups within industry to whom aspects of the inspector's job can be hived off, can there be a radical reduction in the intellectual and

physical workload of the general inspector, and incidentally an implementation of the spirit of self regulation (should that be desired).

Without a limitation of the general inspector's job the only means of attempting to cope with his training needs appears to lie in stricter criteria for selection and longer training.

8.2 FURTHER RESEARCH

This thesis represents an attempt to crystalise a stage in what must be seen as a continuing process of research. The work started out as a seemingly straightforward analysis of training needs. It stumbled upon the lack of concensus and understanding about what the inspector's job is in a changing world, and, as exploratory work in an underresearched field must, it ended up as an attempt to define the parameters on which decisions could be made. In the thesis I have clung tightly to the lifeline of the assessment of training needs as a way of structuring the area of study. It has proved to be a convenient principle around which to discuss the possible limits of the job. I would claim that it has been a neglected principle. To adapt Marx to my purpose, parliament has passed labour laws but has been shrewd enough not to consider the implication for the quality and calibre of person needed for their compulsory implementation.* However there are clearly other principles which must govern the final decisions about the limits drawn to the general inspector's job and indeed the Health and Safety Executive's job. Some of these limits are practical ones of the location of industry and concerns of traveling time (see also Parliamentary Debate on the Factory Inspectorate Hansard v.893, col. 1925-38 20.6.1975).

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* K. Marx. Capital Vol. 1 p.390 (English Edition of 1976)
"Parliament passed five Labour Laws between 1802 and 1833 but was shrewd enough not to vote a penny for their compulsory implementation, for the necessary personnel etc.".

Others are matters of social policy. The early factories legislation has attracted great interest and analysis from social historians economists and sociologists from Marx (1867) onwards (see e.g. Finer (1952), Driver (1946) MacDonagh (1958) Hart (1965). But at that time it was largely legislation to regulate hours. During the time in which the legislation was becoming more concerned with health and safety and hence more technical it has attracted little or no attention except of a descriptive and technical nature. Now that the 1974 Act has placed the subject firmly back in the sphere of labour and industrial relations legislation the questions of social policy and government intervention are perhaps more sharply relevant again.

One clear line of research which stretches from this thesis is therefore the further exploration of the role of central government inspectorates in health and safety, both by comparative study of different inspectorates in this and other countries (see also Chicken 1975) and by detailed study of the other participants in health and safety; employers and their representative organisations, trades unions, professional groups and pressure groups. The objectives of such research would be to explore the direct and collateral objectives (Atherley 1975) which these groups were pursuing, and to evaluate the power of the problem solving model on which this thesis has been based.

A related question which stems more directly from the theme of this thesis is the question of selection, training and organisation of any groups of people employed by industry to take part of the workload of detection and solution of health and safety problems, i.e. of safety representatives and safety advisers. Only if there are viable solutions to the provision of competent people in such positions, can the solution of hiving off work to them from the

inspectorate hope to work.

Finally the original research question from which this thesis developed still remains unanswered in detail. I have argued that it cannot be answered properly until the wider issues explored here have been settled. It is hard to draw the line between research and curriculum development, but it is clear that more work is needed to adapt the actual processes of training and selection to the emerging insights of any research which is undertaken.

APPENDIX 1

CLASS II AND IB INTERVIEWS

1. Perhaps we could start by you telling me what you see to be the overall objectives of your own job?

2. * (a) What tasks make up that job at this moment? (Replaced with statement of inspectorate official categories).

   (b) Have you done anything in the last month that does not fit into those categories?

3. (a) Which tasks do you think are the most important? Why?

   (b) Which do you find most difficult? Why?

   * (c) Which do you enjoy most? Why?

4. Have you had any new jobs to do since:-

   (a) the New Act?

   (b) reorganisation?

5. * On what basis is your time allocated between tasks?

6. * How much say do you have in the allocation?

7. How have the priorities altered since:-

   (a) the New Act?

   (b) reorganisation?

8. Can I take a few of the tasks you have mentioned and ask you about them in a bit more detail?

---

* Questions marked with an asterisk were left out of the final interview for reasons of lack of time or lack of individual difference between answers.

(a) Inspection-routine,

(b) Accident or complaint investigation,

(c) Prosecution.

For each in turn:-

(a) What do you see as its objectives?

(b) How do you go about it?

(c) What knowledge does it require?

(d) What skills does it require?

(e) What did you find most difficult about it when you first did it?

(f) What do you find most difficult about it now?

(g) * How did you learn it?

(h) Have there been any changes in it since:-

(i) the New Act?

(ii) reorganisation?

9. * What paperwork do you have to do in your job?

10. On what basis is your performance as an inspector judged?

11. (a) What creates a favourable impression of you to your boss?

(b) What creates an unfavourable impression of you to your boss?

12. * What factors influence the chances of your promotion to IA?

Can we now turn to your own training and background?

13. What was your basic qualification? In What subject?

14. Do you have any other qualifications? What?

15. Did you have other jobs before joining the inspectorate? What?

16. What year did you join?

17. (a) What training courses have you been through since joining?
(b) What did you think of them:

18. Are there other courses you would have liked to have attended? What?

19. * How were you introduced to the full range of the general inspector's work?

20. Have you been a nominated inspector or specialised in particular work at any time?

21. (a) What did that involve?
(b) How were you trained for it:

Can I turn to your dealings with specialist inspectors?

22. On what occasions do you turn to specialist inspectors for advice?
(a) on what problems?
(b) at what stage?

23. When would you ask him to visit?

24. How often have you called on a specialist inspector for advice in the last year?

25. * (a) How often have you called on other sources of advice?
What?

(b) On what occasions?

26. Would it be helpful to you if there were any other specialists within the inspectorate?

27. * When do specialists call on you to do things for them?

Can I now turn to your picture of the ideal recruit to the inspectorate?

28. What personal qualities do you think he should have?

29. What educational background should he have?

30. Do you think all recruits should have had some industrial experience? Why?

(a) If YES What sort?

(b) If NO Does it help them if they have?

31. * What knowledge must the inspector require?

32. * What skills must he learn?

33. What would be an ideal training for him?

IA/SI AREA DIRECTOR INTERVIEW

1. Perhaps we could start by you telling me what you see to be the overall objectives of a IB general inspector's job.

2. * What tasks make up that job at this moment in time?
(Replace by listing type of work as in the inspectorate's classification)

3. (a) Which of the tasks you have mentioned do you think are the most important? Why?
(b) Which is the most difficult? Why?

4. On what basis is the IB's time allocated among the tasks?

5. How much say does the individual IB have in that allocation?

6. (a) How has the IB's job changed since you were a IB yourself?
(b) Has it changed since the New Act?
(c) Has it changed since Area reorganisation?

7. * What additional tasks do you as DI have/do DI's have?

8. * (a) Which tasks are of prime importance for a DI?
* (b) Which is most difficult?

9. * Has the DI's job changed since the New Act? Since reorganisation?

10. * Can you sum up the objectives of a DI's job?

11. Can I take a few of the tasks you have mentioned and ask you about them in a bit more detail?

(a) Inspection - routine.

(b) Accident or complaint investigation.

(c) Prosecution.

For each:

(a) What do you see as its objectives?

(b) How should it be done?

(c) What knowledge does it require?

(d) What skills does it require?

(e) What is the most difficult aspect of it?

(f) How do inspectors learn it?

(g) Has the task changed since you joinee?

If YES As a result of what?

12. On what basis do you judge a IB's performance as an inspector?

13. (a) What impresses you favourably about his work:

(b) What impresses you unfavourably?

14. What factors influence his promotion to IA?

15. *On what basis is a DI's performance judged?

16. *(a) What creates a favourable impression?

*(b) What creates an unfavourable one?

17. *What factors influence a DI's promotion?

18. Can I ask you what was your basic qualification?
In what subject?

19. Do you have other qualifications? What?

20. Did you have other jobs before joining the inspectorate? What?

21. What year did you join the inspectorate?

22. (a) What training courses have you been through since joining?
(b) What did you think of them?

23. Are there other courses you would have like to have been laid on? What?

24. How were you introduced to the full range of the general inspector's work?

25. Have you been a nominated inspector or specialised on particular work at any time?

26. (a) What did that involve?
(b) How were you trained for it?

Can I turn to the question of the relationship of the general inspector's job to that of other inspectors?

27. On what occasions do you think IB inspectors should turn to a specialist inspector for advice?

28. (a) On what problems?

(b) At what stage?

29. How often would you expect that to happen in the course of a year?

30. * What other sources of advice can a IB call on?

31. * When would you expect him to call on them?

32. Do you think that it would be helpful if there were any other specialists within the inspectorate?

33. * When do specialist inspectors call on you or your IB's:-

(a) for facilities?

(b) to do work for them?

Can I now turn to your picture of the ideal IB inspector?

34. What personal qualities do you think he should have?

35. What educational background should he have?

36. Do you think all recruits should have had some industrial experience? Why?

(a) If YES What sort?

(b) If NO Does it help them if they have?

37. * What knowledge must the inspector acquire?

38. * What skills must he learn?

39. What would be an ideal training for him?

Turning to the ideal DI:-

40. * (a) What personal qualities does he need?

* (b) What additional knowledge and skills must he acquire?

* (c) What training would you like to see him have?

APPENDIX 2

INTERVIEW DATA

The data from the interviews are responses to open ended questions upon which I have imposed a post hoc classification. The interviews sought to achieve depth and richness of data rather than precise classification in order to ensure that all possible difficulties and requirements should be represented in the data. Hence the Tables presented below give only a fraction of the value obtained from the interviews. They also provided the insights into the job which helped towards a classification of its important dimensions and a source of directly relevant material for the planning of the Department's postgraduate courses. Some of the data has not been referred to directly in this thesis, but is included here for the sake of completeness.

Each Table contains a reference to the relevant questions in the interview schedules (Appendix 1). The number of respondents is quoted as N = Where the total of responses in the table is more than N this was because more than one response was obtained per interviewee. Responses are normally analysed by status, IA and above, IB, and Class II. (see Appendix 9 for inspectorate grades).

1. Overall Objectives N = 63 = 15 + 21 + 27

Q.1.	Total	IA & Above	IB	II
Enforce the law	28	4	10	14
Advise on standards/compliance	5	1	3	1
Identify lack of compliance	1	1	0	0
Diagnose problems	7	4	2	1
Assess management	4	3	0	1
Improve standards	21	1	9	11
Educate management	4	2	2	0
Influence management	1	1	0	0
Sell safety	4	1	1	2
Advise on solutions	14	3	3	8
Assist industry to solve problems	4	0	2	2
Change the organsiation	2	0	1	1
Change attitudes	1	0	0	1
	96	21	33	42

Several inspectors gave more than one objective (hence numbers do not correspond to the total sample size), the commonest pairs of objectives being enforcement/advice (15) and enforcement/improve standards (5).

2. Priority Tasks N = 60 = 14 + 21 + 25

Q.3a	Total	IA & Above	IB	II
Routine Inspection	28	7	12	9
Investigation	8	3	3	2
Priority Visits	3	1	1	1
Follow up Visits	6	0	2	4
Phone work	1	0	2	1
Getting into Factories	9	4	1	4
Getting the Message over	9	1	2	6

The last 2 response categories are non-specific. Respondents refused to pick one activity which was most important, and stated their answer in terms of an objective.

3. Changes in Work

4.4, 7, 8 (h)(IB/II) 6,11 (g) (IA/SI)

Class II inspectors were only asked these questions if they had entered the inspectorate before the 1974 Act was fully in force, or if they had changed from a divisional to an area organisation.

Changes attributed to Time (A), the 1974 ACT (B) and Area Reorganisation (C) are given separately.

N = 47 16 + 22 + 9

	Total			IA & Above			IB			II		
	A	B	C	A	B	C	A	B	C	A	B	C
More Legislation	1			1								
Industry more Complex	5			4			1					
Deeper Knowledge of Industry needed	2	2	4	2		2		1			1	2
New risks of new entrants		9			4			4			1	
Less breadth of knowledge of industry needed			3			1			1			1
More emphasis on management/ organisation	2	15	1	1	7		1	6	1		2	
More involvement with work force	1	11		1	2			8			1	
More emphasis on measurement	2			1			1					
More advice/involvement in planning	3	8	3			2	3	7	1		1	
Job more reactive	8	5		5	1		3	3			1	
More in public eye	1	5		1	1			4				
More discretion	4	5	1	4	2	1		2			1	
Less discretion	2			2								
Inspect on sample basis	4	1		4				1				
Follow up more important	2			2								
Use of notices		11			6			4			1	
Prosecution easier		1			1							
Use law less		1	1					1	1			
More travel			3						1			2
Less cohesion in the inspectorate			2									2
Total	37	74	18	28	24	6	9	41	5	0	9	7

4. Job Difficulties.

Q 3(b) 8(e)(f) (IB/II) 3(b) 11(e) (IA/SI)

N = 60 = 12 + 23 + 25

	Total	IA & Above	IB	II
Detecting hazards	5		2	3
Knowing the law	13	1	2	10
Deciding standards	12	3	3	6
Deciding action	14	5	8	1
Priority setting	17	9	5	3
Breadth of knowledge of industry/technolgoy	22	1	10	11
Inspection of management/ organisation	6	1	5	
Dealing with people, communication/confrontation	30	2	14	14
Lecturing	2		1	1
Accident/complaint investigation	5	3	1	1
Report writing/administration	19	2	4	13
Court work especially defended prosecution	5	3	2	
Total	150	30	57	63

5. Activities/Aspects of the Job.

Q 8(b) (IB/II) 11(b) (IA/SI)

The categorisation used in this table is somewhat coarse, since I was trying to assess the major building blocks of the job and not the detailed activities which might vary from factory to factory and day to day. The numbers in this Table particularly must be treated with care, since I was not trying to obtain exhaustive descriptions of the job from all interviewees. The intention was to build up a complete picture from the group as a whole.

N = 64 = 17 + 23 + 24

	Total	IA & Above	IB	II
Organise workload	6	1	1	4
Run the visit	6		2	4
Observe	9	3	2	4
Form quick impression	5	1	1	3
Use instruments	10	2	5	3
Ask questions	36	10	8	8
Judge truth	11	2	1	8
Assess systems	10	3	3	4
Assess people	4		2	2
Assess priorities	14	6	3	5
Marshal evidence	18	6	5	7
Establish proof	7	1	4	2
Listen	2		1	1
Keep up conversation	4	1		3
Communicate/persuade	17	5	7	5
Maintain confidentiality	9	3	4	2
Earn respect	1		1	
Sell	3		2	1
Explain	3	1	1	1
Arbitrate	2	1	1	
Deal with managers	4	4		
Deal with workers	10	4	2	4
Deal with people	22	5	7	10
Gain Access to information	11	2	5	4
Know limits of knowledge	5	2		3
Decide actions	16	6	7	3
Write	4	2	1	1

6. Knowledge and Skill Required.

Q 8(c)(d) (IB/II) 11(c)(d) (IA/SI)

This classification is again coarse. It is designed to highlight the areas where knowledge and skill was felt to be needed, not to specify in detail the content of the knowledge.

N = 65 = 17 + 23 + 25

	Total	IA & Above	IB	II
Dangers/problems	39	9	13	17
Standards	18	3	8	7
Law	50	12	19	19
Industry	12	3	5	4
Process/machinery	48	10	19	19
Terminology	7	2	3	2
Technical knowledge	20	9	6	5
Scientific principles	22	5	5	12
People	8		3	5
Solutions	13(3)	4	4(2)	5(1)
Measurement	4		3	1
Read plans	1		1	
Systems of work	4		2	2
Compensation	1			1
Standard of proof	10	3	6	1
Court procedures	8	2	3	3

	Total	IA & Above	IB	II
Public speaking	8	4	3	1
Writing	7	1	4	2
Driving	1			1

The numbers in brackets represent comments specifically opposed to the possession of a particular sort of knowledge.

7. Attributes Judged Upon.

Q 10, 11 (IB/II) 12, 13 (IA/SI).

N = 51 = 13 + 20 + 18

	Total	IA & Above	IB	II
Don't know	10		6	4
Good reports	33	8	15	10
Numbers of inspections	14		11	3
Get through work	23	2	12	9
Not miss hazards etc.	9	2	1	6
Get on with boss	5		4	1
Get results	5	1	3	1
Not too many complaints	15	5	6	4
Get in limelight	4		4	
Get on with people	14	6	2	6
Argue law well	6	3	2	1
Know technical aspects	8	6	1	1
Take decisions	20	8	8	4
Accept rules	3			3
Know limitations	1		1	
Seek information	5	2	3	
Self confident	12	10	1	1
Flexible	3	2		1
Accurate	5	2	1	2
Intelligent/learn fast	6	2	2	2
Tough	2	2		
Honest	2	2		
Stable	2			2
Enthusiastic	2			2

8. Role of the Specialist.

Q 22, 23 (IB/II) 27, 28 (IA/SI)

N = 62 = 17 + 23 + 22

	Total	IA & Above	IB	II
New/unusual machines	21	5	10	6
Deal with manufacturer	2	1	1	0
Large/complex hazard	17	4	10	3
Risk assessment	3	2	0	1
Sample/Test/Measure	14	3	6	5
Designs/Plans/Calculations	11	4	3	4
National policy/standard	20	8	8	4
Judgement/professional opinion	12	5	3	4
If beyond generalist's knowledge or information	30	9	12	9
If first solution does not work	8	3	3	2
To impress	3	0	2	1
Expert witness	12	3	5	4
To train generalists	5	3	1	1

Criticisms

Too readily called in	12	4	5	3
Not specialist enough*	17	3	11	3
Time delay in arrival	9	3	5	1

Gaps in Specialism

Q 26 (IB/II) 32 (IA/SI)

The following gaps were mentioned. Numbers in brackets represent the number of people mentioning the gap.

Fire (1), Diving (1), Ventilation (2), Medical(2), Legal (3), Structural Stability (1), Ionising radiation (1), Industrial Hygiene (1), Management (4), Psychology (1), Industrial relations (1).

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* This criticism was particularly levelled at the Engineering Branch.

9. Qualities Required.

Q 8, 28 (IB/II), 11, 34 (IA/SI).

The attributes mentioned in the two contexts are given separately on the table. Numbers for the two questions cannot be totalled because one person often gave the same qualities in answer to both questions.

N = 65 = 17 + 23 + 25

	Total		IA & Above		IB		II	
	Q 8/11	Q 28/34	Q 11	Q 34	Q 8	Q 28	Q 8	Q 28
Intelligent	1	10	1	2		3		5
Agile mind	7	11	4	1	2	7	1	3
Good memory	3	13	1	3	1	5	1	5
Resourceful	5	2	2	1	2		1	1
Thorough	7		1		2		4	
Systematic	5				2		3	
Clear/concise	6	7	2		3	3	1	4
Precise	1						1	
Honest	2		1		1			
Cunning	1				1			
Cynical/Suspicious	3	3	1		1	2	1	1
Articulate	2	9		3	1	4	1	2
Persuasive/communicator	2	22	1	7	1	6		9
Literate		10		4		5		1
All rounder	3	11	2	2		4	1	5
Committed	2				2			
Energetic	3	3	1	2	2	1		
Enthusiastic		6		3		2		1
Competitive	2				2			
Forceful	5	11	2	1	2	5	1	5
Self Confident	12	15	4	5	5	5	3	5
Stand ground	2	18	1	5	1	7		6
Persistent	9	5	5	4	4			1
Decisive	3	17	2	4	1	12		1
Polite	2				1		1	
Tactful	19	10	7	1	5	4	7	5
Patient	9	1	3		3	1	3	
Sensitive/Humane/Aware	8	7	3	3	2	1	3	3
Fair	2	4			1	4	2	
Equable		14				4		10
Adaptable	3	14	1	4	1	5	1	5
Common sense	2	4		1		2	2	1
Sureness of touch	1		1					
Down to earth	1	2		1			1	1
Credible	3						3	
Independent		15		3		10		2
Accept responsibility		4		3		1		
Organised		4		1		2		1
Get on with people		29		3		14		12
Extravert		6		1		2		3
Humour		2		1				1
Observant		2		2				
Admit limits		60		16		20		24
Fit organisation		6		5		1		
		7		3		1		3

10. Qualification Required at Entry.

Q 29 (IB/II) 35 (IA/SI)

N = 67 = 18 + 24 + 25

	Total	IA & Above	IB	II
Degree essential	58	16	17	23
Degree not essential	9	2	5	2
Science essential to O Level	7	4		3
essential to degree	3		3	
preferred to degree	31	8	10	12
not essential	24	4	11	10
Social science valuable	1			1
Arts degree valuable	5	2	1	2
Not overqualified	3	1	1	1

	Interviewee possessing	
	Engineering/Science Qualification	Non Science Qualification
Science preferred/essential	33 (8, 12, 13)	6 (2, 3)
not essential	15 (3, 6, 6)	13 (5, 5, 3)

Figures in brackets are for IA/IB/II respectively.

11. Industrial Experience.

Q 30 (IB/II) 36 (IA/SI).

N = 66 = 17 + 24 + 25

	Total	IA & Above	IB	II
Not necessary	8	1	5	2
Desirable	37	12	12	13
Essential	21	4	7	10
Long experience a disadvantage	9	3	4	2

Type of experience mentioned	Total	IA & Above	IB	II
shop floor	13	4	6	3
management	9	2	4	3
Advantage conferred				
Credibility	3	1		2
Maturity	18	2	9	7
Feel	9	1	5	3
Knowledge	25	6	10	9

Desirability v Experience of interviewee

	Industrial Experience	None
Not necessary	2 (0, 1, 1)	6 (1, 4, 1)
Desirable	14 (6, 3, 5)	23 (6, 9, 8)
Essential	17 (3, 7, 7)	4 (1, 0, 3)

Figures in brackets are for IA/IB/II respectively.

APPENDIX 3

* Pre-factory inspectorate + Principal Acts

FACTORIES ACTS

	Date	Chapter	Short Title or Commonly used Title	Repealed
*	1802	42 G 3 c.73	Health & Morals of Apprentices	1878
*	1819	59 G 3 c.66	Cotton Mills (Health of Young Persons)	1831
*	1819	60 G 3 c.5	Cotton Mills and Factories	1831
*	1825	6 G 4 c.63	Cotton Mills and Factories	1831
*	1829	10 G 4 c.51	Employment of Children	1831
*	1829	10 G 4 c.63	(Validation Act)	1831
*	1831	1 & 2 W 4 c.37	Truck	
*	1831	1 & 2 W 4 c.39	Cotton Factories	1833
+	1833	3 & 4 W 4 c.103	Mills and Factories	1878
	1834	4 & 5 W 4 c.1	(Explanation Act)	1874
+	1844	7 & 8 V c.15	Factories	1878
	1845	8 & 9 V c.29	Printworks	1870
	1846	9 & 10 V c.18	Printworks (Correction)	1870
	1846	9 & 10 V c.40	Ropeworks	1878
	1847	10 & 11 V c.29	Factories	1874
	1847	10 & 11 V c.70	Printworks	1870
	1850	13 & 14 V c.54	Factories	1878
	1853	16 & 17 V c.104	Employment of Children in Factories	1878
	1856	19 & 20 V c.38	Factories	1878
	1860	23 & 24 V c.78	Bleach & Dye Works	1870
	1861	24 & 25 V c.117	Lace Works	1878
	1862	25 & 26 V c.8	Bleach fields (Women and Children's Employment)	1870

APPENDIX 3 (Continued)

Date	Chapter	Short Title or Commonly used Title	Repealed
1863	26 & 27 V c.38	Bleach & Dye Works	1870
1863	26 & 27 V c.40	Bakehouses	1878
1864	27 & 28 V c.48	Factory Acts (Extension)	1878
1864	27 & 28 V c.98	Factory Acts (Extension)	1870
1867	30 & 31 V c.103	Factory Acts (Extension)	1878
1867	30 & 31 V c.146	Workshops Regulation	1878
1870	33 & 34 V c.62		1878
1871	34 & 35 V c.19	Workshops	1878
1871	34 & 35 V c.104	Factories & Workshops	1878
1874	37 & 38 V c.44	Factories (Health of Women)	1878
1874	37 & 38 V c.48	Hosiery Manufacture (Wages)	
1876	39 & 40 V c.79	Elementary Education	1878 onwards
+ 1878	41 & 42 V c.16	Factories & Workshops	1901
1880	43 & 44 V c.23	Elementary Education	
1883	46 & 47 V c.53	Factories & Workshops	1901
1887	50 & 51 V c.46	Truck	
1889	52 & 53 V c.44	Prevention of Cruelty to and Protection of Children	
1889	52 & 53 V c.62	Cotton Cloth Factories	1901
1891	54 & 55 V c.75	Factories & Workshops	1901
1894	57 & 58 V c.28	Notice of Accidents	
1895	58 & 59 V c.37		1901
1896	59 & 60 V c.44	Truck	
1897	60 & 61 V c.58	Cotton Cloth Factories	1901
+ 1901	1 E 7 c.22	Factories & Workshops	1937
1902	2 E 7 c.21	Shop Clubs	
1903	3 E 7 c.45	Employment of Children	1921

Date	Chapter	Short Title or Commonly used Title	Repealed
1906	6 E 7 c.53	Notice of Accidents	
1907	7 E 7 c.39	Factory and Workshop	1937
1908	8 E 7 c.42	White Phosphorus Matches (Prohibition)	1937
1911	1 & 2 G 5 c.21	Cotton Cloth Factories	1929
1916	6 & 7 G 5 c.31	Police, Factories, etc.	1937
1918	8 & 9 G 5 c.39	Education Act	
1919	9 & 10 G 5 c.51	Check Weighing in various industries	
1920	10 & 11 G 5 c.62	Women & Young Persons (Lead Processes)	1937
1920	10 & 11 G 5 c.65	Employment of Women, Young Persons & Children	1936 for women
1923	13 & 14 G 5 c.42	Workmen's Compensation Act	
1926	16 & 17 G 5 c.37	Women & Young Persons (Lead Painting)	1961
1929	19 & 20 G 5 c.15	Cotton Cloth Factories	1937
1936	26 G 5/1E 8 c.22	Hours of Employment (Conventions)	
1936	26 G 5/1E 8 c.24	Employment of Women & Young Persons	1937/ 1961
+ 1937	1E 8/1G 6 c.67	Factories	1961
1938	1 & 2 G 6 c.69	Young Persons (Employment)	
1939	2 & 3 G 6 c.31	Civil Defence	1945 (Suspended)
1940	3 & 4 G 6 c.38	Truck	
1944	7 & 8 G 6 c.31	Education Act	
1948	11 & 12 G 6 c.55	Factories	1961
1957	5 & 6 E 2 c.40	Thermal Insulation (Industrial Buildings)	
1958	6 & 7 E 2 c.70	Slaughter Houses	

APPENDIX 3 (Continued)

Date	Chapter	Short Title or Commonly used Title	Repealed
1959	7 & 8 E 2 c.67	Factories	1961
1960	8 & 9 E 2 c.37	Payment of Wages	
+ 1961	c.34	Factories	
1963	c.41	Offices, Shops & Railway Premises	
1965	c.52	National Insurance (Industrial Injuries)	
1966	c.28	Docks & Harbours Act	
1972	c.28	Employment Medical Advisory Service	1974
+ 1974	c.37	Health & Safety at Work etc.	

APPENDIX 4

REGULATIONS IN FORCE IN OCTOBER 1976

1900 No.	
521	Pens Particulars Order 1900.

1902 No.	
623	Felt Hats Manufacture Regulations 1902
561	Chains, Anchors and Cart Gear Particulars Order 1902
560	Locks, Latches and Keys Particulars Order 1902

1903 No.	
334	Felt Hats Particulars Order 1903
507	File-cutting by Hand Regulations 1903
1157	Modification of Space in Bakehouses Order 1903

1905 No.	
1103	Spinning by Self-acting Mules Regulations 1905
1293	Wool, Goat Hair and Camel Hair Regulations 1905

1906 No.	
177	Flax and Tow Spinning and Weaving Regulations 1906
679	Locomotives and Waggons (Used on Lines and Sidings) Regulations 1906

1907 No.	
17	Paints and Colours Regulations 1907
409	Various Industries Particulars Order 1907
410	Nets and Pea-Picking Particulars Order 1907
616	Yarn (Dyed by Lead Compounds) Heading Regulations 1907
660	Hemp Spinning and Weaving Regulations 1907
792	Mixing, Casting, or Manufacture of Brass or of Articles of Brass, and the Electro-Depositing of Brass Particulars Order 1907
984	Horsehair Regulations 1907

1908 No.	
1258	Vitreous Enamelling Regulations 1908
1287	East Indian Wool Regulations 1908
1312	Electricity Regulations 1908

1909

No.	
720	Tinning of Metal Hollow-Ware, Iron Drums and Harness Furniture, Regulations 1909
1027	Wearing Apparel Particulars Order 1909
1337	Cartridges and Tobacco Particulars Order 1909
1370	Bleaching, Dyeing and Printing of Cotton Cloth Particulars Order 1909

1911

No.	
394	Homework Order
413	Iron Safes Particulars Order 1911
752	Lead Smelting Regulations 1911
1046	Household Linen, Curtains and Furniture Hangings and Lace Particulars Order 1911
1292	Files Particulars Order 1911
1293	Toy Balloons, Pouches and Footballs from India-Rubber Particulars Order 1911
1294	Laundries Particulars Order 1911

1912

No.	
234	Chocolate and Sweetmeats Particulars Order 1912
361	Bronzing Regulations 1912
1297	Shipbuilding Yards Particulars Order 1912

1913

No.	
1388	Iron and Steel Foundries Particulars Order 1913

1917

No.	
1035	Tin and Terne Plates Factories Welfare Order 1917
1067	Ambulance and First-Aid Arrangements at Blast Furnaces, Copper Mills, Iron Mills, Foundries and Metal Works Order 1917

1918

No.	
368	Tanning (Two-Bath Process) Welfare Order 1918
369	Dyeing (Use of Bichromate of Potassium or Sodium) Welfare Order 1918
558	Glass Bottle Manufacture, Etc., Welfare Order 1918
1489	Saw Mills and Woodworking Factories Welfare (Ambulance and First Aid) Order 1918

1919

No.	
1136	Fruit Preserving Welfare Order 1919

APPENDIX 4 (Continued)

1920

No.	
654	Laundries Welfare Order 1920
1437	Gut Scraping, Tripe Dressing, etc. Welfare Order 1920
1662	Herring Curing (Norfolk and Suffolk) Welfare Order 1920

1921

No.	
288	Glass Bevelling Welfare Order 1921
1443	Lead Compounds Regulations 1921
1713	Lead Compound (Definition) Order 1921
1714	Women and Young Persons (Employed in Lead Process) Medical Examinations Order 1921
1715	Women and Young Persons Employed in Lead Process (Provision of Facilities for Clothing, Canteen and Washing Accommodation) Order 1921
1825	Celluloid Regulations 1921
1932	Aerated Water Regulations 1921
2032	Hollow-ware and Galvanishing Welfare Order 1921
2076	Hides and Skins Regulations 1921

1922

No.	
317	Pottery Particulars Order 1922
329	India Rubber Regulations 1922
731	Chemical Works Regulations 1922

1925

No.	
28	Electric Accumulator Regulations 1925
231	Docks Regulations 1925
904	Grinding of Metals (Miscellaneous Industries) Regulations 1925
1089	Grinding of Cutlery and Edge Tools Regulations 1925

1926

No.	
299	Vehicle Painting Regulations 1926
535	Herring Curing (Scotland) Welfare Order 1926
1463	Woollen and Worsted Textiles (Lifting of Heavy Weights) Regulations 1926

1927

No.	
191	Bakehouses Welfare Order 1927
813	Herring Curing Welfare Order 1927
847	Lead Paint Regulations 1927
860	Sacks (Cleaning and Repairing) Welfare Order 1927
872	Biscuit Factories Welfare Order 1927

1928 No.	
82	Manufacture of Cinematograph Film Regulations 1928
548	Horizontal Milling Machines Regulations 1928

1929 No.	
300	Cotton Cloth Factories Regulations 1929
534	Oil Cake Welfare Order 1929
1119	Lampshades Particulars Order 1929

1930 No.	
94	Cement Works Welfare Order 1930
312	Tanning Welfare Order 1930

1931 No.	
359	Refractory Materials Regulations 1931
455	Chromium Plating Regulations 1931
684	Sugar Factories Welfare Order 1931

1934 No.	
190	Cellulose Solutions Regulations 1934
279	Docks Regulations 1934

1936 No.	
1367	Shift System in Factories and Workshops (Consultation of Workpeople) Order 1936

1938 No.	
106	Kiers Regulations 1938
488	Local Authorities (Transfer of Enforcement) Order 1938 (as amended)
533	Factories Act 1937 (Adaptations under section 98) Order 1938
598	Gasholders (Record of Examinations) Order 1938
599	Chains, Ropes and Lifting Tackle (Register) Order 1938
607	Factories (Intervals for Women and Young Persons) Regulations 1938
608	Night Work of Male Young Persons (Medical Examinations) Regulations 1938
610	Factories Act (Docks, Building and Engineering Construction, etc.) Modification Regulations 1938
611	Sanitary Accommodation Regulations 1938
640	Factory Overtime (Separation of Different Parts or Sets) Regulations 1938
641	Operations at Unfenced Machinery Regulations 1938
727	Aerated Water Manufacture (Overtime) Regulations 1938

1938 - Continued

No.	
728	Laundries (Overtime) Regulations 1938
729	Laundries, Manufacture of Bread, etc. (Hours and Intervals) Modification Regulations 1938
1163	Florists (Overtime) Regulations 1938
1228	Factory (Individual Overtime) Regulations 1938
1245	Chocolates and Sugar Confectionary (Overtime) Regulations 1938
1501	Young Persons (Employment) Order 1938
1528	Biscuit Manufacture (Overtime) Regulations 1938
1612	Glass Bottles and Jars (Overtime) Regulations 1938

1939

No.	
509	Bread, Flour Confectionary and Sausage Manufacture (Overtime) Regulations 1939
510	Bread, Flour Confectionary and Sausage Manufacture (Commencement of Employment) Regulations 1939
571	Cinematograph Film Stripping Regulations 1939
621	Fruit and Vegetable Preserving (Hours of Women and Young Persons) Regulations 1939
642	Dyeing and Cleaning (Overtime) Regulations 1939
857	Ice Cream (Overtime) Regulations 1939
1490	Net Mending (Overtime) Regulations 1939
1560	News Agencies and Communications Companies (Messengers) Regulations 1939
1888	Factories (Separation for Certain Purposes) Regulations 1939

1940

No.	
109	Factories (Saturday Exception) Regulations 1940
139	Young Persons under Sixteen (Factory Hours Modification) Regulations 1940
729	Bottling of Beer, Wines and Spirits (Overtime) Regulations 1940

1941

No.	
94	Factories (Standards of Lighting) Regulations 1941

1944

No.	
739	Electricity (Factories Act) Special Regulations 1944

1946

No.	
258	Patent Fuel Manufacture (Health and Welfare) Special Regulations 1946
2107	Magnesium (Grinding of Castings and other Articles) Special Regulations 1946

1947 No.	
31	Dangerous Occurrences (Notification) Regulations 1947
184	Factories Act Holidays (Different Days for Different Sets) Regulations 1947
2161	Pottery (Health) Special Regulations 1947
2600	Cotton Factories (Length of Spell Exemption) Order 1947

1948 No.	
1145	Building (Safety, Health and Welfare) Regulations 1948
1547	Clay Works (Welfare) Special Regulations 1948
1696	Jute (Safety, Health and Welfare) Regulations 1948
2161	Factories Acts (Certificate of Fitness of Young Persons) (Adaptation) Regulations 1948

1949 No.	
35	Milk and Cheese Factories (Hours of Women and Young Persons) Regulations 1949
2224	Dry Cleaning Special Regulations 1949
2225	Blasting (Castings and other Articles) Special Regulations 1949

1950 No.	
65	Pottery (Health and Welfare) Special Regulations 1950
370	Grinding of Cutlery and Edge Tools (Amendment) Special Regulations 1950
688	Grinding of Metals (Miscellaneous Industries) (Amendment) Special Regulations 1950
1700	Foundries (Parting Materials) Special Regulations 1950
1837	Factories (Evening Employment) Order 1950

1952 No.	
1495	Factories (Cotton Shuttles) Special Regulations 1952
1689	Factories (Testing of Aircraft Engines and Accessories) Special Regulations 1952

1953 No.	
1464	Iron and Steel Foundries Regulations 1953
1545	Mule Spinning (Health) Special Regulations 1953

1954 No.	
921	Dangerous Machines (Training of Young Persons) Order 1954

1955 No.	
274	Employment of Young Persons (Glass Containers) Regulations 1955
1626	India Rubber Regulations 1955

1958 No.	
61	Work in Compressed Air Special Regulations 1958
1819	Poultry Preparation (Overtime) Regulations 1958

1959 No.	
756	Employment of Young Persons (Iron and Steel Industry) Regulations 1959
906	First-Aid Boxes in Factories Order 1959

1960 No.	
421	Engineering Construction (Extension of Definition) Regulations 1960
688	Diving Operations Special Regulations 1960
1029	Washing Facilities (Running Water) Exemption Regulations 1960
1612	First-Aid (Standard of Training) Order 1960
1691	First-Aid Boxes (Miscellaneous Industries) Order 1960
1794	Factories (Cleanliness of Walls and Ceilings) Order 1960
1932	Shipbuilding and Ship-repairing Regulations 1960

1961 No.	
114	Shipbuilding (Reports on Breathing Apparatus, Etc.) Order 1961
115	Shipbuilding (Reports on Chains and Lifting Gear) Order 1961
116	Shipbuilding (Reports on Ropes and Rope Slings) Order 1961
117	Shipbuilding (Particulars of Annealing) Order 1961
430	Shipbuilding (Air Receivers) Order 1961
431	Shipbuilding (Lifting Appliances etc. Forms) Order 1961
433	Shipbuilding (Reports on Lifting Appliances) Order 1961
1345	Breathing Apparatus, etc. (Report on Examination) Order 1961
1580	Construction (General Provisions) Regulations 1961
1581	Construction (Liting Operations) Regulations 1961

1962 No.	
183	Railway Employment Exemption Regulations 1962
241	Docks (Training in First-Aid) Regulations 1962
715	Hoists Exemption Order 1962
1667	Non-Ferrous Metals (Melting and Founding) Regulations 1962

1963 No.	
715	Lifting Machines (Particulars of Examinations) Order 1963

1964 No.	
762	Factories Act 1961 (Extension of Section 40) Regulations 1964
781	Examination of Steam Boilers Regulations 1964
1070	Examination of Steam Boilers Reports (No. 1) Order 1964
1278	Lead Processes (Medical Examinations) Regulations 1964

1965 No.	
1293	Factories (Fire Certificate Application) Order 1965
1441	Power Presses Regulations 1965
1536	Visiting Forces and International Headquarters (Application of Law) Order 1965

1966 No.	
94	Construction (Working Places) Regulations 1966
95	Construction (Health and Welfare) Regulations 1966
1400	Factories (Notification of Diseases) Regulations 1966

1967 No.	
879	Carcinogenic Substances Regulations 1967

1968 No.	
1454	Electricity Regulations 1908 (Competent Persons Exemption) Order 1968
780	Ionising Radiations (Unsealed Radioactive Substances) Regulations 1968
1530	Engineering Construction (Extension of Definition) (No. 2) Regulations 1968
1575	Electricity Regulations 1908 (Portable Apparatus Exemption) Order 1968

1969 No.	
690	Asbestos Regulations 1969
808	Ionising Radiations (Sealed Sources) Regulations 1969

1970 No.	
535	Abrasive Wheels Regulations 1970

1971 No.	
476	Foundries (Protective Footwear and Gaiters) Regulations 1971

1972

No.	
87	Thermal Insulation (Industrial Buildings) Regulations 1972
917	Highly Flammable Liquids and Liquefied Petroleum Gases Regulations 1972

1974

No.	
903	Woodworking Machines Regulations 1974
1439	Health and Safety at Work etc. Act 1974 (Commencement No. 1) Order 1974
1681	Protection of Eves Regulations 1974
1776	Factories Act 1961 (Enforcement of Section 135) Regulations 1974
1887	Truck Acts 1831-1896 (Enforcement) Regulations 1974
1925	Industrial Tribunals (Improvement and Prohibition Notices Appeals) Regulations 1974
1941	Factories Act 1961 etc. (Repeals and Modifications) Regulations 1974
2040	Health and Safety Licensing Appeals (Hearings Procedure) Rules 1974

1975

No.	
303	Protection of Eyes (Amendment) Regulations 1975
335	Health and Safety Inquiries (Procedure) Regulations 1975
344	Health and Safety at Work etc. Act 1974 (Commencement No, 2) Order 1975
560	Social Secruity (Claims and Payments) Regulations 1975
1012	Factories Act 1961 (Repeals) Regulations 1975
1364	Health and Safety at Work etc. Act 1974 (Commencement No. 3) Order 1975
1584	Employers Health and Safety Policy (Exceptions) Regulations 1975

1976

No.	
955	Operations at Unfenced Machinery (Amendment) Regulations 1976
1246	Health and Safety Inquiries (Procedure) (Amendment) Regulations 1976

APPENDIX 5

INSPECTORS REPORTS

From 1833 - 1844 the reports were presented quarterly.

From 1845 - 1877 they were presented half yearly.

From 1878 - 1974 they were presented annually.

From 1975 onwards there were a number of reports for the various parts of the Health and Safety Executive. The report for the Factory Inspectorate was incorporated with that for the Explosives Inspectorate and the Railway Inspectorate, the report being entitled Health & Safety : Industry & Services.

Date	Command No.	Date of Issue	Parliamentary Papers Vol.	Signed by
1834 Aug.	596	1834	XLIII	L.Horner, R.Rickards,
1835 June	342	1835	XL	T.J.Howell,
Aug.	78	1836	XLV	R.J. Saunders.
1836 Dec.	73	1837	XXXI	"
1837 Dec.	119	1837-8	XXVIII	"
1838 March	131	1837-8	XXVIII	"
June	612	1837-8	XLV	"
Dec.	159	1839	XIX	L.Horner, T.J. Howell,
1839 June	201	1839	XIX	R.J.Saunders, J.Stuart.
Dec.	218	1840	XXIII	"
1840 June	261	1840	XXIII	"
Dec.	294	1841	X	"
1841 June	342	1841	VI	"
Dec.	31	1842	XXII	"
1842 June	410	1842	XXII	"
Ded.	429	1843	XXVII	"
1843 June	523	1843	XXVII	"
Dec.	524	1844	XXVIII	"
1844 June	583	1844	XXVIII	"
1845 April	639	1845	XXV	"
Oct.	681	1846	XX	"
1846 April	721	1846	XX	"
Oct.	779	1847	XV	"
1847 April	828	1847	XV	"
Oct.	900	1847-8	XXVI	"
1848 April	957	1847-8	XXVI	"
Oct.	1017	1849	XXII	"
1849 April	1084	1849	XXII	"
Oct.	1141	1850	XXIII	L.Horner, T.J.Howell, R.J.Saunders.

Date	Command No.	Date of Issue	Parliamentary Papers Vol.	Signed by
1850 April	1239	1850	XXIII	L.Horner, T.J.Howell, Sir J.Kincaid, R.J.Saunders.
Oct.	1304	1851	XXIII	
1851 April	1396	1851	XXIII	
Oct.	1439	1852	XXI	"
1852 April	1500	1852	XXI	L.Horner, T.J.Howell, Sir J.Kincaid.
Oct.	1580	1852-3	XL	L.Horner, T.J.Howell, Sir J.Kincaid, A.Redgrave.
1853 April	1642	1852-3	XL	
Oct.	1712	1854	XIX	
1854 April	1796	1854	XIX	"
Oct.	1881	1854-5	XV	"
1855 April	1947	1854-5	XV	"
Oct.	2031	1856	XVIII	"
1856 April	2090	1856	XVIII	"
Oct.	2153	1857	Vol.III Sess.1	"
1857 April	2247	1857	Vol.XVI Sess.2	"
Oct.	2314	1857-8	Vol.XXIV	L.Horner, Sir J.Kincaid, A.Redgrave, R.Baker
1858 April	2391	1857-8	Vol.XXIV	
Oct.	2463	1859	Vol.XII Sess.1	"
1859 April	2538	1859	Vol.XII Sess.2	"
Oct.	2594	1860	Vol.XXXIV	"
1860 April	2689	1860	XXXIV	"
Oct.	2765	1861	XXII	A.Redgrave, R. Baker, Sir J.Kincaid.
1861 April	2854	1861	XXII	
Oct.	2923	1862	XXII	"
1862 April	3029	1862	XXII	A.Redgrave, R.Baker.
Oct.	3076	1863	XVIII	"
1863 April	3206	1863	XVIII	"
Oct.	3309	1864	XXII	"
1864 April	3390	1864	XXII	"
Oct.	3473	1865	XX	"
1865 April	3557	1865	XX	"
Oct.	3622	1866	XXIV	"
1866 April	3751	1866	XXIV	"
Oct.	3794	1867	XVI	"
1867 April	3914	1867	XVI	"
Oct.	4010	1867-8	XVIII	"
1868 April	4093	1868-9	XIV	"
Oct.	4093-1	1868-9	XIV	"
1869 April	4093-11	1868-9	XIV	"
Oct.	77	1870	XV	"
1870 April	215	1870	XV	"
Oct.	348	1871	XIV	"
1871 April	446	1871	XIV	"
1872 April	602	1872	XVI	"
Oct.	745	1873	XIX	"
1873 April	849	1873	XIX	"
Oct.	937	1874	XIII	"
1874 April	1086	1874	XIII	"
Oct.	1184	1875	XVI	"
1875 April	1345	1875	XVI	"
Oct.	1434	1876	XVI	"
1876 April	1572	1876	XVI	"
Oct.	1693	1877	XXIII	"

Date	Command No.	Date of Issue	Parliamentary Papers Vol.	Signed by
1877 April	1794	1877	XXIII	A.Redgrave, R.Baker
Oct.	2001	1878	XX	"
Reports of Chief Inspectors of Factories.				
From 1878 Reports were produced annually.				
1878	2274	1879		A.Redgrave
1879	2489	1880		"
1880	2825	1881		"
1881	3183	1882		"
1882	3488	1883		"
1883	3945	1884		"
1884	4369	1885		"
1885	4702	1886		"
1886	5002	1887		"
1887	5328	1888		"
1888	5697	1889		"
1889	6060	1890		"
1890	6330	1891		"
1891	6720	1892		F.H.Whymper
1892	6978	1893		R.E.Sprague Oram
1893	7368	1894		"
1894	7745	1895		"
1895	8067	1896		"
1896	8561	1897		B.A.Whitelegge
1897	8965	1898		"
1898	9281	1899		"
1899	223	1900		"
1900	668	1901		"
1901	1112	1902		"
1902	1610	1903		"
1903	2139	1904		"
1904	2569	1905		"
1905	3036	1906		"
1906	3586	1907		"
1907	4166	1908		"
1908	4664	1909		"
1909	5191	1910		"
1910	5693	1911		"
1911	6239	1912		"
1912	6852	1913		"
1913	7491	1914		"
1914	8051	1915		"
1915	8276	1916		"
1916	8570	1917		H.M.Robinson
1917	9108	1918		"
1918	340	1919		"
1919	941	1920		R.E.Graves
1920	1403	1921		"
1921	1705	1922		"
1922	1920	1923		G.Bellhouse
1923	2165	1924		"
1924	2437	1925		"
1925	2714	1926		"
1926	2903	July 1927		"

Date	Command No.	Date of Issue	Signed by
1927	3144	July 1928	G. Bellhouse
1928	3360	July 1929	"
1929	3633	July 1930	"
1930	3927	July 1931	"
1931	4098	July 1932	"
1932	4377	July 1933	D. R. Wilson
1933	4657	July 1934	"
1934	4931	July 1935	"
1935	5230	July 1936	"
1936	5514	July 1937	"
1937	5802	July 1938	"
1938	6081	July 1939	"
1939	6251	Dec. 1940	A. W. Garrett
1940	6316	Oct. 1941	"
1941	6397	Sept.1942	"
1942	6471	Sept.1943	"
1943	6563	Oct. 1944	"
1944	6698	Nov. 1945	"
1945	6992	Dec. 1946	H. E. Chasteney
1946	7299	Jan. 1948	G. P. Barnett
1947	7621	Jan. 1949	"
1948	7839	Nov. 1949	"
1949	8155	Feb. 1951	"
1950	8455	Feb. 1952	"
1951	8772	March. 1953	"
1952	9154	June 1954	"
1953	9330	Dec. 1954	"
1954	9605	Nov. 1955	"
1955	8	Nov. 1956	"
1956	329	Jan. 1958	"
1957	521	Sept.1958	T. W. McCullough
1958	810	July 1959	"
1959	1107	Sept.1960	"
1960	1479	Sept.1961	"
1961	1816	Sept.1962	"
1962	2128	Sept.1963	R. K. Christy
1963	2450	Sept.1964	"
1964	2724	Sept.1965	"
1965	3080	Sept.1966	"
1966	3358	Aug. 1967	"
1967	3745	Sept.1968	W. J. C..Plumbe
1968	4146	Sept.1969	"
1969	4461	Sept.1970	"
1970	4758	Sept.1971	B. H. Harvey
1971	5098	Sept.1972	"
1972	5398	Sept.1973	"
1973	5708	Sept.1974	J. D. G. Hammer
1974	6322	Sept.1975	"
1975	Health & Safety.	Industry & Services 1975 HMSO 1977	"
1974-6	Health and Safety Commission Report 1974-6 London	HMSO 1977	W. Simpson

From 1957 - 1966 the Reports on Industrial Health in factories were published separately:

Date	Command No.	Date of Issue	Signed by
1957	558	Oct. 1958	T. W. McCullough
1958	811	July 1959	"
1959	1137	Sept.1960	"
1960	1478	Sept.1961	"
1961	1815	Sept.1962	"
1962	2129	Sept.1963	R. K. Christy
1963	2444	Sept.1964	"
1964	2723	Sept.1965	"
1965	3081	Sept.1966	"
1966	3359	Sept.1967	"

From 1972 onwards the medical inspectorate was transformed into the Employment Medical Advisory Service separate from the Factory Inspectorate. It became part of the Health and Safety Executive when that was formed.

1973-4 Employment Medical Advisory Service
A Report of the Work of the Service
HMSO 1975 T. Lloyd Davies

1975-6 Health & Safety Employment Medical Advisory Service Report
HMSO 1977 K. D. Duncan

APPENDIX 6

GOVERNMENT REPORTS

These are listed in chronological order. In the text they are referred to by their date and/or by their chairman's name.

Date	Title and Reference	Chairman
1816	Report of Minutes of Evidence on the state of Children employed in the Manufactories of the United Kingdom. Parliamentary Papers 1816 III 397	Sir Robert Peel
1831/2	Reports from the Select Committee on the Bill to Regulate the Labour of Children in the Mills and Factories of the United Kingdom. Parliamentary Papers 1831/2 XV 706	T. Sadler
1833/4	Reports from the Commissioners appointed to collect Information in the Manufacturing Districts relative to the Employment of Children in Factories. First Report Parliamentary Papers 1833 XX 450 Second Report Parliamentary Papers 1833 XXI 519 Supplementary Reports Parliamentary Papers 1834 XIX,XX 167	Lord Ashley (2nd & Supplementary Reports by T. Took & E. Chadwick)
1837	Directions by the Secretary of State to the Factory Inspectors. Parliamentary Papers 1837 L 219	
1840	Reports from the Select Committee on the Act for the Regulation of Mills and Factories. Parliamentary Papers 1840 X 203, 227, 314, 334 419, 504 and Parliamentary Papers 1841 IX 56	Lord Ashley
1867	Report of the Select Committee on the Factory Acts Extension and Hours of Labour Regulation Bills. Parliamentary Papers 1867 IX 429	Lord J. Manners
1870	Report of the Select Committee on the Factories and Workshops Bills. Parliamentary Papers 1870 VIII 378	A. S. Ayrton

Date	Title and Reference	Chairman
1876	Reports of the Commissioners appointed to inquire into the Working of the Factories and Workshops Act with a view to their Consolidation and Amendment. Parliamentary Papers 1876 XXIX, XXX 1443	Sir J. Ferguson
1888/9	Reports of the Select Committee of the House of Lords on the Sweating System. Parliamentary Papers House of Lords 1888 XX 361 1888 XXI 448 1889 XIII 165 1889 XIV 331 1890 XVII 169	Lord Kenry (Earl of Dunraven and Mount Earl)
1891	Return of the Regulations governing the Qualifications required of Factory Inspectors and the Examination Subjects. Parliamentary Papers 1891 LXIII	
1892/3/4	Reports of the Royal Commission on Labour Parliamentary Papers House of Commons 1892 XXXIV - XXXVI 6708, 6795 1893/4 XXXII - XXXIX 6894, 7063 1894 XXXV 7421	Duke of Devonshire
1907	Return of the Names and Previous Occupations or Professions of (a) the Inspectors (b) the Inspectors Assistants and (c) the Lady Inspectors who are now serving. Parliamentary Papers 1907 LXXVI 172	
1911	Report of the Departmental Committee on Accidents in Places under the Factory and Workshop Acts. Report Cmnd. 5535, Minutes of Evidence Cmnd. 5540 London HMSO	H. J. Tennant F. D. Acland
1917	Report of the Machinery of Government Committee of the Ministry of Reconstruction. Parliamentary Papers 1918 XII Cmnd. 9230.	
1930	Report of the Departmental Committee on the Factory Inspectorate. Cmnd. London HMSO.	Sir V. Henderson
1944	Report of the Committee on the Training of Civil Servants. Cmnd. 6525 London HMSO	R. Assheton

APPENDIX 6 (Continued)

Date	Title and Reference	Chairman
1956	White Paper. Staffing and Organisation of the Factory Inspectorate. Cmnd. 9879 London HMSO.	
1959	White Paper. Duties Organisation and Staffing of the Medical Branch of the Factory Inspectorate. Cmnd. 736 London HMSO.	
1970	Public Inquiry into a Fire at Dudgeon's Wharf on 17th July 1969. Home Office Cmnd. 4470 London HMSO.	A. W. Michael Davies
1972	Report of the Committee on Safety and Health at Work. Cmnd. 5034 London HMSO.	Lord Robens

APPENDIX 7

PARLIAMENTARY DEBATES HANSARD REFERENCES

The following list of Hansard references covers the period from 1815 to 1976 and details the main debates which referred to the inspectorate and to the passage of Health and Safety Legislation. References used in the body of the thesis are asterisked.

Hansard has been through a number of series as follows:

1066 - 1803	36 vols.	
Nov. 1803 - Feb. 1820	41 vols.	1st Series
April 1820 - July 1830	25 vols.	2nd Series
Oct. 1830 - Aug. 1891	356 vols.	3rd Series
Feb. 1892 - Dec. 1908	199 vols.	4th Series
Feb. 1909 - present		5th Series

Date		Volume	Date	Column
1815	Factory Amendment Bill	31	5.6.1815	624-7*
1819	Cotton Factories Bill	37	19.2.1819	559-66
			23.2.1819	581-8
			2.4.1819	1182-90
			10.4.1819	1259-63
		38	17.4.1819	169-75
			27.4.1819	342-71
		40	14.6.1819	1130-2
		41	7.12.1819	815-6
1825	Cotton Mills Regulations Bill	13	5.5.1825	421-2
			16.5.1825	643-9
			31.5.1825	1008-11
			30.6.1831	501-2
1831	Hours of Work Bill	4	18.7.1831	1446-7
		5	27.7.1831	388-90
			30.7.1831	558-9
1832-3	Factory Bill	9	15.12.1831	255-7
			1.2.1832	1092-7
		10	7.2.1832	20-3
			9.2.1832	104-7
			10.2.1832	190-5
			20.2.1832	529-32
			28.2.1832	894-5
			7.3.1832	1222-5
		11	14.3.1832	204-5
			16.3.1832	340-98
		13	7.6.1832	500-5
			27.6.1832	1054-7
		14	31.7.1832	965-6

Date		Volume	Date	Column
		15	8.2.1833	390-3
			26.2.1833	1160-5
			28.2.1833	1293-9
		16	14.3.1833	640-3
			20.3.1833	878-90
			22.3.1833	970-3
			25.3.1833	1001-3
		17	3.4.1833	79-115
		18	3.6.1833	305-8
			17.6.1833	914-5
		19	5.7.1833	219-55
			18.7.1833	883-914
		20	9.8.1833	449-53
			12.8.1833	527-31
			13.8.1833	576-8
			13.8.1833	583-6*
1835	Petitions concerning Factory Inspection	26	4.3.1835	526-8
		28	19.6.1835	894-6
1836	Factory Bill	33	9.5.1836	739-90
1837	Horner's Regulations	37	20.3.1837	665-7
1838-9	Factory Bill	43	22.6.1838	968-81
		44	20.7.1838	383-445*
		45	14.2.1839	434
			4.3.1839	1164-87*
		48	1.7.1839	1063-95
			6.7.1839	1417-26
	Inspector Stuart		11.6.1839	148-9
	Factory Inspectors as Spies	55	17.7.1840	785-809*
1843	Factory Bill	67	24.3.1843	1411-77*
	J. Heathcote	76	31.7.1844	1623-4
1844-7	10 Hours Bill	73	15.2.1844	1073-1158
			18.2.1844	1177-1267
			22.2.1844	1371-1525
			29.2.1844	1617-47
			29.2.1844	1666-71
		74	22.4.1844	129-38
			26.4.1844	308-39
			3.5.1844	611-91
			6.5.1844	755-64
		75	31.5.1844	80-86
			3.6.1844	135-53
		77	18.2.1845	638-68
		78	2.4.1845	1368-89*
		83	29.1.1846	378-471
		85	29.4.1846	1222-50
		86	13.5.1846	466-536
			22.5.1846	998-1083
		89	26.1.1847	487-98
			10.2.1847	1073-1150
		90	17.2.1847	127-77
			3.3.1847	745-821
		91	17.3.1847	108-47
			21-4.1847	1122-42

Date		Volume	Date	Column
		92	3.5.1847	306-13
1850	Factory Bill	109	14.3.1850	883-933
		111	6.6.1850	823-56
			14.6.1850	1234-86
		112	26.6.1850	124-30
			15.7.1850	1341-70
		113	19.7.1850	5-10
1853	10 Hours Bill	128	5.7.1853	1251-90
1855	10 Hours Bill	137	15.3.1855	592-619
1856	Factory Bill	141	2.4.1856	351-77
			4.4.1856	443-5
		142	22.5.1856	556-66
1860	Bleach & Dye Works Bill	157	21.3.1860	993-1005
		158	9.5.1860	978-98
		159	27.6.1860	1051-69
1861	Lace Works Bill	164	24.7.1861	1432-49
1864	Factory Acts Extension Bill	175	14.6.1864	1708-28
			17.6.1864	1939-48
		176	14.7.1864	1448-50
1867	Factory Acts Extension Bill	185	1.3.1867	1271-83
		189	30.7.1867	476-86
			30.7.1867	1205-12
			30.7.1867	1433-6
			30.7.1867	1594-7
1869	Printworks Bill	194	13.3.1869	1535-42
	Supply Debates	202	17.6.1870	390-4
	Supply Debate	210	5.4.1872	839-41
	Enforcement of Workshops Act	215	25.4.1873	991-1001
1873	Factory (Hours of Labour) Bill	216	11.6.1873	819-28
		217	30.7.1873	1287-1306
			30.7.1873	1544-53
1874	Factory Act Amendment Bill	218	6.5.1874	1740-1803
1874	Factories (Health of Women) Bill	219	11.6.1874	1415-71
		220	23.6.1874	302-39
			25.6.1874	478-9
			9.7.1874	1326-40
			14.7.1874	1617-21
	Select Committee	222	19.2.1875	556-67
1878	Factory & Workshop Bill	233	6.4.1877	756-63
		237	11.2.1878	1454-82
		238	21.2.1878	63-128
			25.2.1878	302-57
			28.2.1878	456-507
			1.3.1878	589-614
			7.3.1878	877-93
			22.3.1878	1909-13
		239	29.3.1878	261-7
	Supply Debate	239	6.5.1878	1483-5
	Assistant Inspectors	258	21.2.1881	1377-9
	Supply Debate	262	10.6.1881	260-5

Date		Volume	Date	Column
1883	Factory & Workshop Act (Amendment) Bill	279	9.5.1883	343-54
		281	19.7.1883	1865-74
	Supply Debate	298	4.6.1885	1197-1222
	Supply Debate	308	9.8.1886	1831-8
	Supply Debate	317	15.7.1887	1050-68
1887	Truck Bill	314	28.4.1887	304-8
			2.5.1887	677-81
			3.5.1887	833-8
			5.5.1887	1091-1106
			6.5.1887	1237-43
			13.5.1887	1940-2
		316	28.6.1887	1223-58
		317	12.7.1887	610-28
			15.7.1887	1071-1101
			18.7.1887	1298-1302
		318	4.8.1887	1124-5
			8.8.1887	1515-7
		319	12.8.1887	225-6
			19.8.1887	1236-49
		320	7.9.1887	1532-4
	Supply Debate	335	29.4.1889	742-66
	Sweating System	345	9.6.1890	283-317
			10.6.1890	441-84
	Supply Debate	348	12.8.1890	729-75
1891	Factory & Workshop Act (1878) Amendment Bill	350	18.2.1891	945-99
1891	Factory & Workshop Bill	350	26.2.1891	1712-97
		354	18.6.1891	803-77
			19.6.1891	907-81
			29.6.1891	1685-1703
		355	13.7.1891	979-1041
		356	23.7.1891	65-87
			24.7.1891	261-5
		356	3.8.1891	1193-6
			4.8.1891	1230-3
	Supply Debate	355	9.7.1891	736-56
	Debate on Queen's Speech	1	10.2.1892	156-7*
	Supply Debate	5	9.6.1892	643-5
	Supply Debate	17	6.9.1893	302-49
	Supply Debate	28	17.8.1894	1434-58*
1895	Factory & Workshop Bill	23	30.4.1894	1688-90
		31	1.3.1895	168-206
		32	22.4.1895	1403-88
		35	1.7.1895	54
			1.7.1895	123-63
			1.7.1895	223-42
	Supply Debate	43	31.7.1896	1276-93
	Supply Debate	50	18.6.1897	406-14
1897	Workman's Compensation Bill	48	3.5.1897	1421-92
		49	17.5.1897	636-712
			18.5.1897	734-813
			24.5.1897	1151-1210
			25.5.1897	1274-1392

Date		Volume	Date	Column
			27.5.1897	1433-1485
			31.5.1897	1639-1704
		50	1.6.1897	33-140
			3.6.1897	206-80
			5.7.1897	1127-84
			6.7.1897	1228-93
			8.7.1897	1372-1430
			12.7.1897	1604-71
		51	13.7.1897	32-40
			15.7.1897	201-62
			20.7.1897	515-56
			26.7.1897	990-1061
			29.7.1897	1398-1443
			30.7.1897	1626-88
		52	3.8.1897	211-4
	Supply Debate	63	29.7.1898	450-524*
	Supply Debate	74	7.7.1899	220-70
	Supply Debate	75	4.8.1899	1537-43
	Supply Debate	79	23.2.1900	983-91
1900	Factory & Workshop Bill	79	2.3.1900	1539-42
	Resolution on Phosphorus	82	7.5.1900	985-96
	Supply Debate	85	13.7.1900	1475-1538
1900	Workmens Compensation Bill	84	20.6.1900	525-74
			27.6.1900	1209-25
		85	5.7.1900	571-7
			6.7.1900	763-8
		86	16.7.1900	37-9
1901	Factory & Workshop Bill	92	28.3.1901	90-4
		95	11.6.1901	109-42
			17.6.1901	630-76
		99	12.8.1901	503-66
			13.8.1901	649-744
			16.8.1901	1197-9
	Home Office Vote	98	5.8.1901	1255-1335
1902	Factory & Workshop (1901) Amendment Bill	103	27.2.1902	1239-56
		104	13.3.1902	1207-14
	Supply Debate	104	28.2.1902	28-53
	Supply Debate	108	30.5.1902	1016-65
1903	Employment of Children Bill	118	4.3.1903	1422-8
		120	24.3.1903	119-29
		124	23.6.1903	326-67
		125	3.7.1903	1232-315
			22.7.1903	1549-57
		126	31.7.1903	1142-3
		127	7.8.1903	375-7
			10.8.1903	639-50
			11.8.1903	826-33
1903	Workman's Compensation Bill	122	13.5.1903	620-51
	Home Office Vote	124	25.6.1903	558-623
	Estimates	139	4.8.1904	1002-48*
	Physical Deterioration Committee	149	20.7.1905	1304-52

Date		Volume	Date	Column
	Estimates	150	2.8.1905	1350-1422
	Truck	152	27.2.1906	1076-1109
	Estimates	153	5.3.1906	115-34
1906	Notice of Accidents Bill	153	6.3.1906	358-79
		155	24.4.1906	1407-20
	Estimates	162	1.8.1906	1075-1126
1907	Factory & Workshop Bill	174	14.5.1907	735-48
		175	4.6.1907	421-34
			12.6.1907	1387-91
			12.6.1907	1542-54
		179	6.8.1907	1991-2000
		181	21.8.1907	905-23
			24.8.1907	1516-27
	Supply Debate	178	18.7.1907	932-1005
1907	Employment of Wommen Bill	179	2.8.1907	1465-6
1908	Sweated Industries Bill	184	21.2.1908	1196-1260
	Restriction of Hours to 8/day	186	18.3.1908	666-708
	Increase in Accidents	190	3.6.1908	129-59
	Supple Debate	193	29.7.1908	1576-1610
1908	White Phosphorus Matches	194	19.10.1908	832-3
	Prohibition Bill	197	3.12.1908	1746-54
		198	8.12.1908	205-6
1909	Sweated Industries Bill	194	26.10.1908	1558-64
		2	26.3.1909	2061-2129
	Supply Debate	6	14.6.1909	714-60
	Supply Debate	19	20.7.1910	1264-1326
	Supply Debate	27	26.6.1911	259-306
1911	Cotton Cloth Factories Bill	29	16.8.1911	2041-5
	Supply Debate	41	17.7.1912	423-525
	Supply Debate	55	23.7.1913	2061-2132
1914	Factory & Workshop (1901) Admendment Bill	58	25.2.1914	1787-9
	Factory Inspectorate Appointments	64	17.7.1914	2287-9
	Publicity on Fatal Accidents	65	22.7.1914	447-9
	Supply Debate	95	9.7.1917	1667-73
			9.7.1917	1698-1701
	Supply Debate	113	10.3.1919	1018-28
			10.3.1919	1033-4
1920	Women, Young Persons & Children Employment Bill	130	10.6.1920	726-61
		135	26.11.1920	842-87
			29.11.1920	967-1035
			30.11.1920	1157-94
	International Labour Conference	142	27.5.1921	471-551
	Supply Debate	155	29.6.1922	2437-48
1923	Factory & Workship (Bake Houses) Bill	162	10.4.1923	1072-6
1923	Workmens Compensation Bill	163	4.5.1923	1799-1874
		168	13.11.1923	63-162
			14.11.1923	199-328

Date		Volume	Date	Column
1923	Hours of Employment Bill	166	3.7.1923	252-4
	Supply Debate	166	12.7.1923	1629-91
	Supply Debate	173	15.5.1924	1538-1635
1925	Hours of Employment (48 Hours) Bill	181	10.3.1925	1136-8
1926	Hours of Industrial Employment Bill	183	1.5.1925	471-552
		194	30.4.1926	2301-84
	Supply Debate	187	28.7.1925	335-83
1926	Factories Bill	193	26.3.1926	1535-1620
	Supply Debate	208	14.7.1927	2331-89
	Supply Debate	219	11.7.1928	2331-84
1929	Cotton Cloth Factories Bill	226	15.3.1929	1468-70
			18.3.1929	1568-70
	Supply Debate	238	7.5.1930	1014-77
	Supply Debate	255	28.7.1931	2159-90
	Supply Debate	268	6.7.1932	457-500
	Factory Administration	280	28.7.1933	2981-3012
	Factory Department	292	31.7.1934	2481-2520
	Supply Debate	304	16.7.1935	903-1012
	Consolidated Fund	309	5.3.1936	1634-48
	Consolidated Fund	315	30.7.1936	1767-1853
1937	Factories Bill	320	11.2.1937	619-726
			15.2.1937	857-965
		325	15.6.1937	213-336
			16.6.1937	391-516
			17.6.1937	591-723
			22.6.1937	1123-63
		326	27.7.1937	3021-51
			28.7.1937	3244-71
	Supply Debate	338	27.7.1938	3140-3251
	Supply Debate	350	21.7.1939	907-90
	Factories Act & D.O.R.A.	355	5.12.1939	799-804
	Factory & Welfare Dept.	362	27.6.1940	567-70
	Factories Act (Administration)	382	22.7.1942	50-126*
1948	Factories Bill	451	11.6.1948	2746-67
		452	2.7.1948	2477-2502
		453	9.7.1948	731-93
	Safety of Employment Bill	461	11.2.1949	655-718
	Factory Inspectorate Recruitment	488	13.6.1951	2471-80*
	Industrial Safety	495	4.2.1952	764-74
1954	Safety in Employment (Inspection & Safety Organisation) Bill	524	26.2.1954	706-96
	Factory Inspectorate Recruitment	532	12.11.1954	1632-44*
	Mill Fire Keighley	552	18.5.1956	2413-27
	Factories Act Administration	556	16.7.1956	856-927*
	Industrial Accidents	571	7.6.1957	1625-37
1959	Factories Bill	595	17.11.1958	853-956
		603	14.4.1959	819-991

Date		Volume	Date	Column
	Industrial Health	610	27.7.1959	149-80
	Accidents at Work	651	21.12.1961	1607-29
1963	Offices Shops & Railway Premises Bill	667	15.11.1962	588-684
		673	6.3.1963	413-613
	Industrial Accidents	745	4.4.1967	1113-22*
1970	Employed Persons (Health & Safety) Bill	797	2.3.1970	44-168
	Industrial Accidents & Disease	808	11.12.1970	906-18
1971	Employed Persons Safety Bill	811	12.2.1971	1060-1158
1972	Employed Persons Safety Bill	830	4.2.1972	833-914
1972	Employment Medical Advisory Service Bill	828	13.12.1971	121-80
		836	8.5.1972	1086-90
1973	Employed Persons Safety Bill	856	15.5.1973	1246-8
1974	Health & Safety at Work Bill	871	3.4.1974	1286-1394
		875	18.6.1974	241-418
		877	18.7.1974	804-42
	Flixborough Explosion	875	27.6.1974	1736-43
1975	Health & Safety at Work (Amendment) Bill	885	4.2.1975	1170-4
	Factory Inspectorate	893	20.6.1975	1925-38

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Date		Volume	Date	Column
	Factory Inspection	70	29.2.1928	287-302
1929	Cotton Cloth Bill	72	14.2.1929	930-44
			14.2.1929	1182-93
1937	Factories Bill	105	28.6.1937	788-812
		106	12.7.1937	238-336
			22.7.1937	827-59
			30.7.1937	1070-1
1948	Factories Bill	155	15.4.1948	139-55
1959	Factories Bill	215	28.4.1959	1065-1105
		216	11.6.1959	983-1072
		217	7.7.1959	806-12
	Section 14	248	25.4.1963	1321-58
1963	Offices Shops & Railway Premises Bill	247	18.3.1963	944-1000
		248	2.4.1963	446-528
			3.4.1963	595-600
			4.4.1963	686-791
			8.4.1963	845-912

Date		Volume	Date	Column
		249	29.4.1963	6-24
			29.4.1963	31-72
			13.5.1963	1047-80
			15.5.1963	1298-1306
		252	30.7.1963	1037-41
	Safety Committees	279	24.1.1967	509-34
	Accidents	312	28.10.1970	126-86
1972	Employment Medical Advisory Service Bill	329	9.3.1972	224-71
			23.3.1972	840-90
		330	1.5.1972	568-75
	Robens Committee	333	19.7.1972	785-91
	Robens Committee	338	30.1.1973	495-574
1974	Health & Safety at Work Bill	352	27.6.1974	1640-1712
		353	4.7.1974	350-68
			4.7.1974	376-439
			11.7.1974	752-809
			23.7.1974	1658-64

APPENDIX 8

PARLIAMENTARY QUESTIONS - HANSARD REFERENCES

This appendix contains a list of the parliamentary questions referred to in the thesis (asterisked), together with a selection of other questions, from 1815-1976, relevant to the Inspectorate.

(W) denotes written answer.

Questioner	Subject	Vol.	Date	Col.
J. Fielden	Laxity of Enforecement	30	12.8.1835	395-6
Lord Ashley	10 Hours Bill	44	20.7.1838	383-445
Lord Ashley	Employment of Children	55	4.8.1840	1260-79
J. Bright	Support of Schools	83	9.2.1846	554-6
Sir W. James	Amendments to Bill	92	30.4.1847	206
J. Bright	Nepotism	111	28.5.1850	425
Lord J. Manners	Evasion of the Act	124	28.2.1853	738-40
J. Cobbett	Replacement for Horner	164	6.8.1861	1881
Lord J. Manners	Pay of Sub-inspectors	171	18.6.1863	1044
W. Ferrand	Extension of inspection	172	16.7.1863	870
Col. H. Edwards	Sub-inspectors pay	174	17.3.1864	187
F. S. Powell	Tone of Inspectors Reports	174	22.4.1864	1501
P. Muntz	Non-uniformity of Rules	195	29.4.1869	1851
C. Dalrymple	Transfer of Workshops	204	16.2.1871	320
Lord J. Manners	" " "	208	3.8.1871	769-71*
C. Dalrymple	Enforcement in Workshops	211	17.6.1872	1851-2
C. Dalrymple	Local Inspectors to Help	214	14.2.1873	437-8
C. Dalrymple	Enforcement in Workshops	215	25.4.1873	991-1001
H. Broadhurst	Inspectors Reports on Trade Unions	253	24.6.1880	711
C. Dalrymple	Appointment of J.D.Prior	258	21.2.1881	1377
F. O'Donnell	Appontment of W.Paterson	279	10.5.1883	405
Viscount Enfield	Women Inspectors	303	5.3.1886	4-5*
H. B. Reed	Workmen Inspectors	309	13.9.1886	181
W. Johnston	" "	312	21.3.1887	819
T. Healy	" "	312	28.3.1887	1603
H. Broadhurst	Inspectorate Vacancies	327	18.6.1888	439-40
C. Bradlaugh	Age & Ability of Rickards	335	8.5.1889	1418
H. Broadhurst	Entrance Competition	343	17.4.1890	676
J. Leng	Women Inspectors	350	26.2.1891	1690
H. B. Reed	Regulations on Qualifications	351	4.3.1891	351
J. Keir Hardie	Inspection in Ireland	11	11.4.1893	17
W. Field	Sub-inspectors Salary	15	20.7.1893	98
Sir J. Gorst	Promotion Policy	16	17.8.1893	435
C. Conybeare	Yiddish Speaking Inspectors	20	14.1.1894	827*

Questioner	Subject	Vol.	Date	Col.
C. Fenwick	Occupations of Assistants	25	7.6.1894	578-9
A. Donelan	Irish Inspectors	26	6.7.1894	1069
J. Keir Hardie	Workshop Inspection	29	20.8.1894	18
T. Sexton	Irish Inspectors	32	25.3.1895	31
Sir C. Dilke	Police to Help Inspectors	33	29.4.1895	15
J. White	Appointment of Whitelegge	39	20.4.1896	1263
S. Woods	Assistants Powers	50	1.6.1897	11
G. Kemp	Powers of Lady Inspectors	53	21.2.1898	1195
H. J. Tennant	Publication of Inspectors' Instructions	56	28.4.1898	1384
T. Hedderwick	Lady Inspectors in Potteries	58	7.6.1898	874-5
H. J. Tennant	Duties of Medical Inspector	64	4.8.1898	87
H. J. Tennant	Inspectorate Reorganisation	75	28.7.1899	675
A. Bignold	Lady Inspectors	90	28.2.1901	48
W. Galloway	Bias of Inspector	96	8.7.1901	1148
J. Farrell	Irish Inspectors	98	30.7.1901	574
A. Bignold	Lady Inspectors in Scotland	98	5.8.1901	1247
J. Nannetti	Irish Lady Inspector	98	6.8.1901	1446
D. Thomas	Qualifications of Inspectors	105	24.3.1902	826
J. Nannetti	Irish Inspectorate	108	5.6.1902	1548
J. Nannetti	" "	109	16.6.1902	700-1
D. Coghill	Lady Inspector in Potteries	129	16.2.1904	1494-5
T. Sloan	Lady Inspector in Ireland	140	12.8.1904	400 (W)
Sir C. Dilke	Lady Inspectors	148	29.6.1905	533 (W)
J. Farrell	Irish Inspectors	151	8.8.1905	598 (W)*
C. Money	Entrance Examination	152	27.2.1906	1024-5*
A. King	Lady Inspectors	152	28.2.1906	1127
H. J. Tennant	Entrance Examination	152	1.3.1906	1305-6*
T. Sloan	Lady Inspector for Ireland	153	5.3.1906	85
C. Money	Promotion for Assistants	153	13.3.1906	1098
J. Crooks	Docks Inspection	155	2.4.1906	170-1
J. Ramsay Macdonald	Examination	155	5.4.1906	727
J. Ramsay Macdonald	Duties & Pay of Assistants	156	3.5.1906	717-8
E. Money	Excessive Travel of Inspectors	160	12.7.1906	1058
J. Stuart	Assistants Grades	166	28.11.1906	51 (W)
J. Ramsay Macdonald	Assistants Duties	169	18.2.1907	551
J. Ramsay Macdonald	Entrance Examination	170	28.2.1907	244-5
V. Kennedy	Assistants Examination	171	13.3.1907	30-1
W. T. Wilson	Appointments	184	13.2.1908	173 (W)
P. Curran	Inspection in W. London	184	24.2.1908	1357-8
H. J. Tennant	Increase in Staff	185	27.2.1908	20-1 (W)
F. Jowett	Entrance Examination	185	3.3.1908	529-30*
F. Jowett	" "	185	10.3.1908	1306-7*
J. Ramsay Macdonald	Prosecution & Probationary Examination	186	17.3.1908	414
J. Ramsay Macdonald	Assistants Promotion	187	4.5.1908	1654-5
H. Watt	Nomination System	194	19.10.1908	708-9

Questioner	Subject	Vol.	Date	Col.
J. Ramsay Macdonald	Appointments	196	16.11.1908	870
E. Jones	Welsh Speaking Inspectors	14	28.2.1910	562-3
J. Ramsay Macdonald	Office Work	14	7.3.1910	1137
J. Ramsay Macdonald	Duties of Assistants	17	8.6.1910	886-7 (W)
L. Williams	Welsh Speaking Inspectors	18	20.6.1910	19
C. Money	Number of Inspectors	23	20.3.1911	38
A. Henderson	Action on 1911 Committee	30	14.12.1911	2515
A. Henderson	Action on Reorganisation	32	14.12.1911	2515*
J. Ramsay Macdonald	Assistants Jobs	35	4.3.1912	27
A. H. Gill	Previous Occupation of Inspectors	44	20.11.1912	301-3*
A. H. Gill	New Staff	44	26.11.1912	1011
A. Smith	Lady Inspectors	50	18.3.1913	846
A. H. Gill	Reorganisation	53	4.6.1913	890
A. H. Gill	Promotion of Assistants	54	17.6.1913	210
P. Morrell	Increase Lady Inspectors	56	5.8.1913	1241
Dr. Chapple	Promotion of Miss C. Smith	56	14.7.1913	2679 (W)
C. Duncan	Numbers of Inspectors	59	10.3.1914	1061
P. Morrell	Lady Inspectors	65	28.7.1914	1136 (W)
P. Snowden	Inspectors Released for Forces	73	16.3.1916	2284 (W)
Sir P. Magnus	Implementation of 1911 Committee	83	5.7.1916	1535*
F. Roberts	Numbers of Inspectors	112	21.2.1919	1303 (W)
Sir P. Magnus	Transfer Medical Inspectors to Ministry of Health	113	4.3.1919	223
Major J. Hills	Strength of Inspectorate	135	22.11.1920	78 (W)
Sir T. Polson	" " "	141	5.2.1921	1268 (W)
F. Rose	Promotion of Women Inspectors	142	9.6.1921	2092 (W)
Sir W. Davidson	Reorganisation	143	21.6.1921	1064
Sir W. Davidson	"	143	28.6.1921	1968
C. Bowerman	Retirement of Chief Lady Inspector	146	18.8.1921	1679
E. Alexander	Protest at Women Inspectors	167	23.7.1923	37*(W)
W. Ayles	Adequacy of Numbers	171	31.2.1924	1855 (W)
R. Spence	Qualifications of Inspectors	174	29.5.1924	626 (W)
W. Robinson	Vacancies Unskilled	185	2.7.1925	2772
W. Cluse	Crane Inspectors	188	26.11.1925	1573
P. Hannon	D.S.I. Appointment	194	15.4.1926	462*
B. Peto	Objection to Women Inspectors	200	25.11.1926	513*
R. Davies	Resignation of Medical Inspector	200	2.12.1926	1350
G. Buchanan	Numbers of Inspectors	213	23.2.1928	1825 (W)
J. Hayes	Duties of Assistants	214	14.3.1928	1909
W. Whiteley	" " "	215	27.3.1928	991
W. Kelly	Numbers of Inspectors	222	20.11.1928	1570 (W)
H. Day	" " "	223	20.12.1928	3192
H. Day	" " "	227	7.5.1929	2043 (W)
W. Kelly	" " "	236	10.3.1930	937 (W)
H. Day	Notification of Inspectors	239	29.5.1930	1508

Questioner	Subject	Vol.	Date	Col.
F. Gould	Numbers of Inspectors	241	14.7.1930	934 (W)
D. Colville	" " "	253	11.6.1931	1212 (W)
H. Evans	Promotion Policy	255	21.7.1931	1238
H. Evans	New Appointments	256	16.9.1931	840
T. Williams	Women Inspectors	263	17.3.1932	441
A. Short	Numbers of Inspectors	308	20.2.1936	1955
J. Banfield	Promotions	313	17.6.1936	1009 (W)
C. Wilson	Numbers of Inspectors	318		2659 (W)
A. Short	" " "	327	22.10.1937	183 (W)
Viscountess N. Astor	" " "	338	6.7.1938	398 (W)
D. Adams	Docks Inspection	342	8.12.1938	1355
H. Day	Numbers of Inspectors	346	27.4.1939	1326 (W)
G. Mander	Numbers and Air Raid Precautions	351	5.10.1939	2075
D. Adams	Inspectors in Forces	356	25.1.1940	774
G. White	Temporary Inspectors	361	23.5.1940	297
G. Mander	Factory and Welfare Dept.	362	27.6.1940	567-70
D. Adams	Numbers of Inspectors	365	7.11.1940	1437
R. Davies	" " "	389	20.5.1943	1205
M. Edelmann	" " "	421	28.3.1946	97 (W)
S. O. Davies	Welsh Speaking Inspectors	461	8.2.1949	171
A. E. Davies	Vacancies	473	4.4.1950	997
A. E. Davies	"	474	18.4.1950	13
I. Mikado	"	474	25.4.1950	753
W. Mainwaring	Appoint Unemployed	474	2.5.1950	169 (W)
I. Mikado	Age at Entry	477	20.7.1950	196 (W)
M. MacPherson	Vacancies	478	24.10.1950	332 (W)
M. MacPherson	Turnover	480	9.11.1950	88 (W)
C. Pannell	Qualifications Needed	482	5.12.1950	31 (W)
Dr. C. Hill	Numbers	483	23.1.1951	17
I. O. Thomas	Salary and Numbers	485	5.8.1951	82 (W)
Dr. C. Hill	Salaries	486	10.4.1951	797
J. Bevins	Vacancies	487	3.5.1951	154 (W)
Miss I. Ward	Salaries	489	5.7.1951	2466
Dr. C. Hill	Numbers & Qualifications	490	17.7.1951	1029*
A. Lewis	" " "	490	12.7.1951	64 (W)
M. MacPherson	" " "	494	20.11.1951	33 (W)
G. Darling	Qualifications	496	28.2.1952	167*(W)
E. Davies	Numbers	497	6.3.1952	83 (W)
S. Silverman	Qualifications	503	17.7.1952	168*(W)
S. Silverman	Age Limits	521	8.12.1953	214 (W)
Dr. B. Stross	Salary	527	4.5.1954	185
Dr. B. Stross	Qualifications	527	13.5.1954	1403*
S. Silverman	"	528	1.6.1954	65 (W)
Dr. B. Stross	"	531	27.7.1954	214*
I. O. Thomas	Qualifications and Numbers	531	29.7.1954	94 (W)
Dr. B. Stross	" "	532	4.11.1954	595
Dr. B. Stross	Qualifications and Numbers Review Committee	538	15.3.1955	1098
Dr. B. Stross	" "	542	14.6.1955	396-8
Dr. B. Stross	Qualifications and Numbers Review Civil Engineers	544	26.7.1955	102 (W)

Questioner	Subject	Vol.	Date	Col.
F. Lee	Numbers	546	29.11.1955	196 (W)
Dame I. Ward	Promotion Woman DCI	550	15.3.1956	66 (W)
G. M. Thomson	" " "	551	12.4.1956	380
Dr. B. Stross	Numbers and Qualifications	552	1.5.1956	194*
Dr. B. Stross	" "	553	7.6.1956	1261*
Dr. B. Stross	Districts with Technical Staff	555	26.6.1956	257*
Dr. B. Stross	Pay Claim	555	26.6.1956	23 (W)
A. Neave	Radiation Inspection	559	30.10.1956	1239
Dr. B. Stross	Salary	561	29.11.1956	567
F. Willey	Implementation of White Paper	563	22.1.1957	19
Sir L. Plummer	Status of Medical Inspector	563	31.1.1957	212 (W)
Miss M. Herbison	Woman D.C.I	580	18.12.1957	69 (W)
R. Prentice	Numbers	581	5.2.1958	178 (W)
Dr. B. Stross	"	591	9.7.1958	376
R. Prentice	"	595	12.11.1958	45 (W)
Dr. B. Stross	Districts with Technical Staff	596	3.12.1958	1175*
Dr. B. Stross	Building and Construction	601	11.3.1959	116 (W)
R. Prentice	Numbers	607	15.6.1959	6 (W)
Dr. B. Stross	Construction Inspectors	618	24.2.1960	348
Dr. B. Stross	" "	619	7.3.1960	31-2
Dr. B. Stross	Numbers	619	14.3.1960	901-3
Dr. B. Stross	Construction Inspectors	619	7.3.1960	2-3 (W)
R. Prentice	Numbers	624	23.5.1960	7
R. Prentice	"	631	30.11.1961	365
R. Prentice	"	644	12.7.1961	372
R. Prentice	"	651	18.12.1961	916
R. Carr	"	651	11.12.1961	4 (W)
F. Allaun	"	657	5.4.1962	57 (W)
S. Awbery	Staffing of Inspectorate	663	23.7.1962	108 (W)
J. Dugdale	Construction Regulations	671	4.2.1963	1
R. Prentice	" "	673	13.3.1963	673
G. Craddock	Understaffing	699	20.7.1964	19
Mrs. M. McKay	Industrial Hygiene	728	16.5.1966	896-7
Dame J. Vickers	Staffing	756	18.12.1967	914
J. Ashley	Relations with Workers	764	6.5.1968	11 (W)
G. Oakes	Cadre	767	3.7.1968	242 (W)
W. Price	"	776	31.1.1969	391 (W)
W. Price	Numbers	781	31.3.1969	11 (W)
W. Price	Transfer F.I. to Ministry of Technology	796	17.2.1970	96 (W)
H. Walker	Qualifications	811	11.2.1971	232-3* (W)
L. Huckfield	Cadre and Numbers	817	12.5.1971	126 (W)
L. Reed	" " "	834	14.3.1972	239 (W)
M. McNair Wilson	" " "	840	11.7.1972	302 (W)
Miss J. Hall	Numbers	842	9.8.1972	475 (W)
H. Walker	Numbers and Qualifications	843	24.10.1972	224-5 (W)
C. Loughlin	"	847	5.12.1972	362 (W)
E. Wainwright	"	858	19.6.1973	88 (W)
H. Walker	"	860	18.7.1973	140 (W)

Questioner	Subject	Vol.	Date	Col.
M. Meacher	Numbers	861	19.10.1973	321-2
B. Hayhoe	Cadre Turnover	871	2.4.1974	328-30 (W)
R. Cryer	Reorganisation	875	24.6.1974	345-7
M. Madden	H.S.C. & F.I.	880	5.11.1974	875-6
R. Cryer	Reorganisation	887	6.3.1975	489-91 (W)
B. Ford	"	891	6.5.1975	387 (W)
R. Cryer	"	892	20.5.1975	1193-6
J. Evans	"	892	21.5.1975	402-3 (W)
Mrs. A. Wise	Numbers	894	25.6.1975	161-2 (W)
R. Cryer	"	897	5.8.1975	133-4 (W)
P. Rose	"	899	6.11.1975	272-3 (W)
P. Rose	Allocation to Local Authorities	902	16.12.1975	596-7 (W)
Mrs. A. Wise	Numbers	905	10.2.1976	175-6 (W)
Mrs. M. Bain	"	908	2.4.1976	586 (W)
P. Rose	"	913	23.6.1976	532 (W)
G. Janner	Prosecution Policy	913	14.6.1976	32-3 (W)
Mrs. A. Wise	Numbers	921	30.11.1976	20-1 (W)
M. Madden	Limitations of Authority	921	2.12.1976	240-1* (W)

APPENDIX 9

INSPECTORATE GRADES

CHIEF INSPECTOR (CI)

In 1833 4 inspectors were appointed jointly responsible to the Secretary of State. The numbers were retained at 4 until 1859. When Leonard Horner resigned in 1859, and Sir John Kincaid in 1861 they were not replaced. On the resignation of Robert Baker in 1878 the surviving inspector Alexander Redgrave was made chief inspector.

The chief inspector has remained responsible for the running of the inspectorate at first directly responsible to the Secretary of State and later via an administrative civil servant. In 1974 on the setting up of the Health and Safety Executive he became responsible to its Director General.

DEPUTY CHIEF INSPECTOR (DCI)

A post created in 1899 and first held by E. Gould, as assistant to the chief inspector.

SUPERINTENDING INSPECTOR (SI)

Assistant inspectors were first appointed in 1867 to oversee the work of the subinspectors. They were given proper line management functions as a result of the 1876 Commission report, and their title was changed to Superintending Inspectors. They were placed in charge of Divisions. In 1976, as a result of reorganisation their title was changed to Area Director.

INSPECTORS (DSI, IA, IB)

Superintendents or mill wardens were provided for in the 1833 Act. When they gained powers of entry to factories in 1844 they were renamed sub-inspectors. In 1878 they succeded to the title of inspectors. A distinction in salary and in the importance of the district of which they had charge was made in 1871 when inspectors of more than 15 years experience were placed in Grade I (later IA) and those with less in Grade 2 (later IB). The experience required for promotion was reduced in subsequent years. Later, senior IA inspectors were appointed as Deputy Superintending Inspectors (DSI), at first on a part-time basis, but later as full-time deputies to the SI. On reorganisation in 1976 the IA inspectors were renamed principal inspectors (PI).

JUNIOR INSPECTORS

These were appointed first in 1878 and were later renamed Class II inspectors. The grade was from then on the automatic entry grade for the general inspectorate.

ASSISTANTS

Assistants were first appointed in 1893 as a lower grade not required to take the normal entry examination to the inspectorate. Appointments were discontinued in 1914 and not restarted after the war. The grage was phased out after the report of the 1920 Departmental Committee and the last assistant was promoted into the Class II in 1930. A higher grade assistant had been created in 1907 to provide some promotion prospects. The grade was reconstituted in 1965 after the passage of the Offices, Shops and Railway Premises Act 1963.

WOMEN INSPECTORS

Women inspectors were first appointed in 1893 and formed a separate branch until 1921 under the control of a Principal Lady Inspector and Senior Lady Inspectors. On the amalgamation a certain proportion of posts at all levels were retained specifically for women inspectors.

SPECIALIST BRANCHES

A. Engineering An inspector of Cotton Cloth Factories was appointed in 1890 from the ranks of the general inspectorate (EH Osborn). He later became Engineering adviser (1899 - 1903). He was succeeded under the title of Inspector of Dangerous Trades by Sir Hamilton Freer Smith. The engineering branch continued to be recruited from the general inspectorate until after 1956 when direct entry was allowed. Senior engineering inspectors sometimes returned to DCI posts in the general inspectorate.

B. Textile Particulars Established 1891 by appointment of a general inspector. Subsequently filled by direct recruitment.

C. Medical Established in 1898 and always filled by direct recruitment. No transfers between the branch and the general inspectorate ever took place. The medical inspectorate became the Employment Medical Advisory Service in 1972 outside the inspectorate but was drawn into the Health and Safety Executive in 1974.

D. Electrical Established in 1902 in the wake of a large rise in electrical accidents, the electrical branch has always been staffed independently from the general inspectorate.

E. Canteen Advisors Established in 1943 the branch was disbanded in 1957. It was always regarded as a separate entity from the general inspectorate.

F. Chemical This branch was previously part of the engineering branch. It was separated under its own head in 1944. It was staffed in the same way as the engineering branch.

G. Personnel Management This branch was only in the factory inspectorate for 3 years 1945 - 1949, when it was passed over to the Industrial Relations branch of the Ministry.

H. Construction The post of Senior Inspector (Building and Civil Engineering) was established in 1957 within the engineering branch. The branch was expanded after the passage of the Construction Regs. 1961. Special construction districts were formed in 1967 and inspectors recruited from outside the general inspectorate. On reorganisation into industry groups in Areas in 1976 the construction districts were integrated into the general inspectorate.

I. Fire Established in 1968 to look after means of escape. The work was given to local authorities in 1977, but some specialists were retained to advise on high fire risk processes.

J. Accident Prevention Advisory Unit Set up in 1970 as the Accident Studies Unit, it was staffed from the general inspectorate.

K. Other Branches The inspectorate contained an information branch and an industrial hygiene branch. Neither of these was directly concerned with inspection however.

APPENDIX 10

ANALYSES OF ACTS

The analyses given in this appendix are of the 1833, 1961 and 1974 (Ss 1-9) Acts, to illustrate the methods used and the results obtained. The letters in the right hand margin refer to the levels of functioning demanded of inspectors in enforcing the section (for explanation see text of Chapter 5 and Table 8).

For reasons of brevity only those sections which required other than a rule learning level of functioning at stages A to C are marked i.e. levels of functioning below or above rule learning and/or stages of solution beyond specification of standard at any level of functioning.

FACTORIES ACT 8133 (3 & 4. W4. c.103

Section	Contents	Stage or level
1	Application of Act to particular processes only, defined by fibre being processed, and name of process, plus limitation of use of steam, water or other mechanical power. Exemptions for named processes, ancillary work to manufacture, namely packing, and one named product, lace.	
	(a) Ascertain existence of factories and mills subject to the Act.	
	(b) Gain access and entry to the premises (travel and legal entry) see S.17, 19.	
	(c) Recognise materials subject to the Act, i.e. cotton, wool, worsted, hemp, flax, tow, linen and silk and distinguish from other products and materials.	A(SR) A(CC)
	(d) Recognise processes subject to the Act i.e. scutching, carding, roving, spinning, piecing, twisting, winding, throwing, doubling, netting, making thread, weaving, dressing, or exempt from it i.e. fulling, roughing, boiling, packing.	A(SR) A(CC)
	(e) Recognise steam, water and other mechanical power.	A(SR) A(CC)

Section	Contents	Stage or Level
2	Limitation of those under 18 to specified hours per day and per week.	
	(a) Discover and prove who is working on the premises.	
	(b) Ascertain and prove age of persons working.	A(PS)
	(c) Ascertain hours worked each day/each week and check against standard.	
3	Permitted extra working in water powered mills in certain circumstances to regain lost time.	
	(a) Ascertain and prove whether time has been lost and if so how much, from (1) want of supply of water, (2) excess water, (3) water impounded in higher reservoirs.	
	(b) Ascertain and prove total hours worked in 6 months after each loss of time by protected persons.	
	(c) Ascertain and prove whether extra hours worked exceed 3 per week or exceed total from (a).	
	(d) Ascertain and prove if any extra hours worked were between 9 p.m. and 5 a.m.	
4	Permitted extra working from accident to machinery.	
	(a) Recognise steam engine, water wheel, weirs, watercourse, main shafting, main gearing, gas apparatus.	A(SR) A(CC)
	(b) Ascertain and prove if events claimed as justifying extra work can be classed as an "extraordinary accident" to those parts of machinery.	A/C(PS)
	(c) Ascertain and prove if more than 3 hours lost.	
	(d) Ascertain and prove total hours worked by protected persons in 12 days after accident and check that this total is not more than 1 hour/day extra.	

Section	Contents	Stage or Level
5	Permitted extra working for diminished power from water wheel.	
	(a) Ascertain and prove truth of claim that flood or drought reduced the power so that all machinery could not be worked together and time was lost.	
	(b) Ascertain and prove how much time lost by protected persons.	
	(c) Ascertain and prove whether time made up exceeded (b) and was carried on outside permitted hours of 5 a.m. - 9 p.m.	
6	Meal Times	
	(a) Ascertain and prove length of time each protected person took for meals. Check this is over $1\frac{1}{2}$ hours.	
7	Prohibition of work for children under 9.	
	(a) Ascertain and prove age of children (see S 11/12).	A(PS)
	(b) Discover and prove any children of below 9 on the factory premises.	
8	Limitation of hours of young persons of progressively increasing age over the $2\frac{1}{2}$ years after the Act is passed to specified hours per day and week as for S 2. (see S 14/15).	A(PS)
9	Holidays.	
	(a) Ascertain which days each master has set aside for holidays in addition to Christmas Day and Good Friday.	
	(b) Discover and prove any protected persons worked on those days.	
	(c) Recognise substitution of mandatory holidays allowed in Scotland.	
10	Splitting of work between two mills.	
	(a) Ascertain and prove if protected persons worked at one mill have also worked at another.	
	(b) Ascertain and prove if total worked in both mills exceeds permitted time.	

Section	Contents	Stage or Level
11/12	Certificates of Strength and Appearance.	
	(a) Recognise duly produced surgical certificate applicable to any child (S 13).	A(SR)
	(b) Accept and prove truth of certificate as to: (1) Strength, (2) Appearance of a 9 year old.	C(PS)
	(c) Recognise valid countersignature.	A(SR)
13	Form of Certificate.	
	(a) Specify form in which certificate shall be drawn up.	A/C(PS)
14/15	Certificate of Age.	
	(a) Specify form in which certificate shall be drawn up.	A/C(PS)
	(b) Recognise true certificate relating to any given young person.	A(SR)
	(c) In the absence of a certificate recognise and prove the age of a young person to determine if it exceeds the standard.	A(PS)
16	State reasons in writing if refusing to sign certificates.	
17	Appointment of inspectors and powers of entry and examination:	
	(a) Gain entry to mills and factories. (b) Ascertain when they are at work. (c) Examine children and others employed (d) Administer oath and take evidence under oath.	B(PS)
18	Power to make rules, regulations and orders, for keeping and transmission of information:	
	(a) Specify such rules etc.	A,C,E,F,(PS)
19	Appointment of superintendents, their powers and payment.	
	(a) Recognise counting house, school room, manufacturing part of factory (b) Establish purposes for which constable or peace officer is to be employed and paid.	D(PS)

Section	Contents	Stage or Level
20	Children to attend school.	
	(a) Ascertain school chosen by parents or guardian of each child.	
	(b) If none, appoint school.	F(PS)
	(c) Specify circumstances in which fee for school may be deducted from wages by occupier.	F(PS)
	(d) Ascertain and prove that child attends school.	
21	Attendance vouchers.	
	(a) Specify form of attendance vouchers.	A/C(PS)
	(b) Specify when these shall be collected by employer.	A/C(PS)
	(c) Recognise true voucher pertaining to each child.	A(SR)
	(d) Specify how holiday and sickness absence shall be indicated, and recognise true indication voucher.	A/C(PS)
	(e) Allow absences for other reasons from school: (1) Decide upon allowable reasons (2) Communicate these to J.P. who acts in inspector's absence. (3) Recognise J.P.'s permission.	A/C(PS)
22	Establish or procure the establishment of schools if none are available.	F/PS) G(RL) H(PS)
23	Power to dismiss schoolmaster.	
	(a) Recognise if schoolmaster/mistress incompetent or unfit for performance of his/her duties.	A/C(PS)
	(b) Withold salary.	G(RL)
24	Children not to be kept within walls of factory where machinery is, outside permitted hours.	
	(a) Discover and prove where machinery is in use.	A(SR)
	(b) Discover and prove where in the walls of factory children are outside permitted hours.	
	(c) Recognise allowed locations within the factory where children may stay, namely yards open to public view or schoolrooms etc. open to superintendents or peace officers.	

Section	Contents	Stage or Level
25	Publishing of notices in local paper sufficient as service of notice.	
	(a) Know appropriate local paper.	
26	Limewashing.	
	(a) Ascertain and prove when limewashing last carried out and check it was in last 12 months.	
	(b) Decide upon reasons for exempting premises from that provision.	C(PS)
27	Abstract displayed.	
	(a) Specify form of abstract to be displayed/renewed.	A/C(PS)
	(b) Ascertain and prove abstract displayed is:	
	(1) legible	C(PS)
	(2) conspicuous	
	(3) signed by appropriate person	
28	Forgery of Certificates an offence.	
	(a) Detect forgery of certificates.	A(PS)
	(b) Prove forgery to self or J.P.	
	(c) Decide upon appropriate penalty.	D(PS)
29	Overworking an offence.	
	(a) Detect overworking.	
	(b) Prove if parent or guardian in wilful default to self or J.P.	B/C(PS)
	(c) Decide upon appropriate fine.	D(PS)
30/31	Responsibility for offences.	
	(a) Ascertain and prove if offences committed with personal consent, connivance or knowledge of master (if yes b, if not c)	B/C(PS)
	(b) Decide and prove if master was wilfully or grossly negligent.	B/C(PS)
	(c) Ascertain and prosecute agent or servant responsible.	
	(d) Decide upon appropriate penalty.	D(PS)
32	Obstruction of an inspector an offence.	
	(a) Decide what constitutes obstruction	C(PS)
	(b) Prove obstruction occurred.	
	(c) Decide upon appropriate fine.	D(PS)

Section	Contents	Stage or Level
33	Power over constables same as J.P.'s.	
	(a) Know J.P.'s power.	
34	Hearing before inspector or J.P.	
	(a) Conduct hearing on own initiative.	D(PS)
	(b) Conduct hearing before J.P.	
35/36/37	Laying of complaints/information.	
	(a) Lay complaints in appropriate form.	
	(b) Lay complaints within allowed time.	
	(c) Decide person on whom to serve documents.	
38/39	Power to summon witnesses etc.	
	(a) Establish who were witnesses.	
	(b) Know method of summoning.	
	(c) Decide "satisfactory excuse for non appearance.	(PS)
40	Form of conviction.	
	(a) Know appropriate form (schedule).	
41	Issue of distraint.	
	(a) Ascertain non payment of penalty.	
	(b) Issue distraint.	
42	No appeal except on forgery cases.	
43	Power over fines.	
	(a) Establish reasons for giving part of penalty to the prosecutor.	D(PS)
	(b) Establish reasons for giving penalty for benefit of factory schools.	C(PS)
	(c) Disburse money to factory schools.	G(PS)
44	Order constable to provide place for hearing.	
45	Provision of Reports, Meetings etc.	
	(a) Keep minutes of meetings, visits etc.	
	(b) Produce appropriate report for Secretary of State.	(PS)
	(c) Ascertain state and condition of factories and mills and children employed.	A(PS)

Section	Contents	Stage or Level
	(d) Ascertain whether kept according to directions of the Act and of other Laws.	A(PS)
	(e) Know other Laws.	
	(f) Confer regularly to make uniform rules etc. so far as is expedient and practicable.	C(PS)
46	Definition of J.P. in Scotland.	
47	Exemption for certain people.	
	(a) Recognise mechanics, artisans, labourers involved in repair of machinery or premises.	A(SR) A(CC)

FACTORIES ACT 1961 9 & 10 EII c.34

As this is a very long Act the presentation of the analysis is abbreviated by simply listing the subjects about which the inspector has to exercise the various levels of functioning, at the various stages. Also for brevity, the machines, appliances processes etc. which the inspector has to recognise (A.SR/CC) and the hazards he has to detect (A.PS) are omitted. A simple reading of the sections of the Act will enable them to be spotted and counted if desired.

Therefore, for each section the following are listed.

Level	C (PS)	Standards to be set.
	E (RL/PS)	Technical solutions to be recognised or approved.
	F (RL/PS)	Administrative solutions to be recognised or approved.

Section	Contents	Stage and Level
1	Cleanliness	
	Clean state	C(PS)
	Free from effluvia	C(PS)
	Suitable method of dirt removal	E(PS)
	Effective and suitable method of cleaning	E(PS)
	Smooth, impervious surface	C(PS)
	Suitable detergent	E(PS)
	Approved methods of cleaning	E(RL)

Section	Contents	Stage and Level
	Prescribed manner of painting (see also Factories (Cleanliness of Walls and Ceilings) Order 1960)	E(RL)
	Reasons for requiring non power factories to comply	C/E(PS)
	Reason for exemption	C/E(PS)
2	Overcrowding.	
	So overcrowded as to cause risk of injury to health.	C(PS)
	Special conditions for exception for explosives handling	C(PS)
	Reasons for exemption from notice provision	C(PS)
3	Temperature.	
	Effective provision for securing and maintaining	E(PS)
	Reasonable temperature	C(PS)
	Fume likely to be injurious or offensive	C(PS)
	Substantial proportion of work done sitting	C(PS)
	Serious physical effort	C(PS)
	Provision and maintenance of thermometer in suitable position	C(PS)
4	Ventilation.	
	Effective and suitable provision for securing and maintaining circulation	E(PS)
	Adequate ventilation	C(PS)
	Harmless, so far as is practicable	C/E(PS)
	Injurious to health	C(PS)
5	Lighting	
	Effective provision for securing and maintaining lighting	E(PS)
	Sufficient and suitable lighting	C(PS)
	Places where people work or pass (see also Factories (Standard of Lighting) Regulations 1941)	C(PS)
	Windows and skylights so far as is practicable kept clean and free from obstruction	C/E(PS)
	Purpose of mitigating heat or glare	C/E(PS)

Section	Contents	Stage and Level
6	Drainage of Floors.	
	Liable to be wet to such an extent that the wet is capable of being removed	C(PS)
	Effective means provided and maintained	E(PS)
7	Sanitary Conveniences.	
	Sufficient and suitable sanitary conveniences provided and maintained	C(PS)
	Effective provision for lighting	E(PS)
	Proper separate accommodation (see also Sanitary Accommodation Regulations 1938)	C(PS)
8	Enforcement of Ss 1-7.	
	(see also Local Authorities (Transfer of Enforcement) Order 1938)	
9	Powers in Default.	
	Any Act or default	C(PS)
10	Failure to enforce.	C(PS)
11	Power to require medical supervision	
	No Orders made.	
12	Prime Movers.	
	Securely fenced	C(PS)
	In such a position or of such construction as to be as safe as if securely fenced	C(PS)
13	Transmission Machinery.	
	As S.12 above	C(PS)
	Efficient devices or appliances provided and maintained to cut off power promptly	E(PS)
	Suitable striking gear	E(PS)
	Other efficient mechanical appliance provided and maintained	E(PS)
	So constructed, placed and maintained as to prevent ---	E(PS)
	Unnecessary or impracticable to comply	C/E(PS)

Section	Contents	Stage and Level
14	Other Machinery.	
	Dangerous part	C(PS)
	As S.12 above	C(PS)
	Available and suitable safety device	E(PS)
	Need for fencing of materials or articles dangerous while in motion in the machine	C(PS)
15	Unfenced Machinery	
	Lubrication or adjustment immediately necessary or only possible while machine is in motion	C/E(PS)
	Seriously interfere with the process (see also Operations at Unfenced Machinery Regulations 1938)	C/E(PS)
16	Construction and Maintenance of Fencing.	
	Substantial construction	C/E(PS)
	Constantly maintained and kept in position	E/F(PS)
	Necessarily exposed for examination	E(PS)
	As S.15 above	C/E(PS)
17	Construction and Sale of Machinery.	
	Sunk, encased, effectively guarded as to prevent danger	C/E(PS)
	Frequent adjustment	C(PS)
	So situated as to be as safe as if completely encased	C(PS)
18	Dangerous Substances.	
	Evidence sufficient to justify prosecution	B/C(PS)
	Scalding, corrosive or poisonous liquid	C(PS)
	Ground or platform from which a person might fall	C(PS)
	Securely covered or fenced pit etc.	C(PS)
	Practicability of above	E(PS)
	All practicable steps by covering fencing or other means	C/E(PS)
	Securely fenced gangway etc.	C(PS)
	Secure barriers	E(PS)
	Reasons for exemptions	C/E(PS)

Section	Contents	Stage and Level
19	Self Acting Machines	
	Liable to pass	C(PS)
	All practicable steps -- by instructions and otherwise	F(PS)
20	Cleaning of Machinery.	
	Risk of injury from any moving part	C(PS)
21	Training and Supervision of Young Persons.	
	Fully instructed as to the dangers and precautions	F(PS)
	Sufficient training	F(PS)
	Adequate supervision	F(PS)
	(see also Dangerous Machines (Training of Young Persons) Order 1954	
22	Hoists and Lifts.	
	Good mechanical construction	C/E(PS)
	Sound material	C/E(PS)
	Adequate strength	C/E(PS)
	Thoroughly examined by a competent person	F(PS)
	Efficiently protected	C/E(PS)
	Substantial Enclosure	E(PS)
	Efficient interlocking or other devices	E(PS)
	Reasonably practicable to fit	E(PS)
	Secure the objects of the subsection so far as is reasonably practicable	C/E(PS)
	So constructed to prevent trapping	C/E(PS)
	Marked conspicuously	C(PS)
	Maximum load it can safely carry	C(PS)
23	Hoists and Lifts for Passengers.	
	Efficient automatic devices provided and maintained to prevent overrunning	E(PS)
	Efficient devices to prevent movement when the gate is open	E(PS)
	Reasonable practicability of such devices and of alternatives to secure the objects of the section	C/E(PS)
	Capable of carrying the whole weight	C(PS)
	Efficient devices provided and maintained to support platform	E(PS)

Section	Contents	Stage and Level
24	Teagle openings etc.	
	Securely fenced	C(PS)
	Secure hand hold	C(PS)
	Properly maintained	E(PS)
25	Exceptions etc. to Ss 22-24	
	Unreasonable to enforce Ss 22-24 (see also Hoists (Exemption) order 1962	C/E(PS)
26	Chains, ropes and lifting tackle.	
	Good construction, sound material, adequate strength and free from patent defect	C/E(PS)
	Posted in prominent positions	C(PS)
	Thoroughly examined by a competent person	F(PS)
	Unable to be subjected to heat treatment	C(PS)
	Approved heat treatment	E(RL)
	Not in regular use	C(PS)
	Plainly marked	C(PS)
	(see also Chains Ropes and Lifting Tackle (Register) Order 1938 and Exemption certificates)	
27	Cranes and other lifting gear.	
	Good construction, sound material, adequate strength, free from patent defect, properly maintained	C/E(PS)
	Thoroughly examined by a competent person	F(PS)
	Proper size, adequate strength, even running surface, properly laid, adequately supported, properly maintained	C/E(PS)
	Plainly marked	C(PS)
	Liable to be struck	C(PS)
	Effective measures to warn or prevent approach	E/F(PS)
	Unnecessary to warn	C(PS)
	(see also Lifting Machines (Particulars of Examinations) Order 1963)	

Section	Continued	Stage and Level
28	Floors, Passages and Stairs.	
	Sound construction, properly maintained	C/E(PS)
	So far as reasonably practicable free from obstruction	C/E(PS)
	Likely to cause persons to slip	C(PS)
	Substantial handrail provided and maintained	E(PS)
	Specially liable to cause accidents	C(PS)
	Effective means	E(PS)
	Securely fenced unless impracticable	C/E(PS)
29	Means of Access and Place of Employment.	
	So far as is reasonably practicable provided and maintained safe access and made and kept safe place of work	C/E(PS)
	Liable to fall	C(PS)
	Secure foothold and handhold, so far as is reasonably practicable	C/E(PS)
30	Dangerous fumes and lack of Oxygen.	
	Dangerous fumes	C(PS)
	Liable to be present to such an extent as to involve risk	C(PS)
	Adequate means of egress	E(PS)
	Suitable breathing apparatus	E(PS)
	Authorised by a responsible person	F(PS)
	Where practicable wearing a belt securely attached	E(PS)
	Person capable of pulling him out	E(PS)
	Certified as safe by responsible person, and warned	F(PS)
	Effective steps to prevent ingress	E(PS)
	Liable to give off dangerous fumes	C(PS)
	Adequately ventilated, tested and provided with air for respiration	C/E/F(PS)
	Insignificant quantities	C(PS)
	Supplied and kept readily available	E/F(PS)
	Sufficient supply of suitable breathing apparatus (approved)	E(RL/PS)
	Suitable reviving apparatus	E(PS)
	Maintained and thoroughly examined by competent person	E/F(PS)
	Sufficient number trained and practiced in use of apparatus	F(PS)
	Exemption reasons	C/E/F(PS)
	Proportion of air liable to be substantially reduced	C(PS)
	Sufficiently cooled	C(PS)
	(see also Breathing Apparatus etc. (Report of Examination) Order 1961	

Section	Contents	Stage and Level
31	Explosive or inflamable dust etc.	
	Dust of such a character and to such an extent as to be liable to explode on ignition	C(PS)
	Practicable steps to prevent explosion	E(PS)
	Possible sources of ignition	B(PS)
	Pressure likely to be produced	C(PS)
	Practicable steps to restrict spread	E(PS)
	Equally effective devices	E(PS)
	Effectively stopped	E(PS)
	Practicable steps to reduce pressure	E(PS)
	Practicable steps to remove the substance etc.	E(PS)
	Sufficient cooling	C(PS)
	Exemptions reasons and orders	C/E(PS)
32	Steam boilers.	
	Suitable fusible plug	E(PS)
	Efficient low water alarm	E(PS)
	Suitable safety valve	E(PS)
	As close as practicable to the boiler	C/E(PS)
	Suitable stop valve	E(PS)
	Correct steam pressure gauge	C(PS)
	Easily visible	C/E(PS)
	Distinctive colour	C/E(PS)
	Approved water gauge	C(PS)
	Efficient guard	E(PS)
	Distinctive number	E(PS)
	Correct position of weight on lever	E(PS)
	Good construction, sound material, adequate strength, free from patent defect	C/E(PS)
	Exemption reasons and orders	C/E(PS)
33	Steam boilers.	
	Properly maintained	E(PS)
	Examined as prescribed (see also Examination of Steam Boilers Regulations 1964 and Examination of Steam Boilers (Reports) Order 1964)	F(RL)
	Entered as soon as practicable	F(PS)
	Responsible officer of the company	F(PS)
	Assess competency of examiner	F(PS)
	Exception reason and certificate	C/E/F(PS)
34	Entry into Steam boilers.	
	Securely locked	E(PS)

Section	Contents	Stage and Level
35	Steam Receivers and containers	
	So constructed and maintained as to withstand the maximum permissible working pressure	C/E(PS)
	Suitable reducing valve or other suitable automatic appliance	E(PS)
	Suitable safety valve	E(PS)
	Suitable appliance for cutting off steam	E(PS)
	Correct steam pressure gauge	C(PS)
	Suitable stop valve	E(PS)
	Distinctive number	C/E(PS)
	Good construction, sound material, adequate strength, free from patent defect	C/E(PS)
	Properly maintained, thoroughly examined by competent person	E/F(PS)
	Prescribed particulars	F(RL)
	Exception certificates	C/E/F(PS)
36	Air Receivers.	
	Plainly visible	C/E(PS)
	So constructed as to withstand maximum working pressure	
	Suitable reducing valve or other suitable appliance	E(PS)
	Suitable safety valve	E(PS)
	Correct pressure gauge	C(PS)
	Suitable drainage appliance	E(PS)
	Suitable manhole etc. to allow interior to be thoroughly cleaned	C/E(PS)
	Distinguishing mark, easily visible	C/E(PS)
	Sound construction, properly maintained	C/E(PS)
	Thoroughly cleaned and examined	E/F(PS)
	Competent person	F(PS)
	Exceptions certificates	E/F(PS)
37	Exceptions to Ss 32-34.	
38	Definitions as to Ss 32-34.	
39	Gas Holders.	
	Sound construction, properly maintained	C/E(PS)
	Thoroughly examined by competent person	F(PS)
	Sufficient means of examining internal state	E/F(PS)
	Conspicuous position, distinctive number	C/E(PS)
	Necessary precautions	E(PS)
	Direct supervision by person competent by training and experience and knowledge of necessary precautions	F(PS)
	(see also Gasholders (Record of Examinations) Order 1938	

Section	Contents	Stage and Level
40	Fire Certificate.	
	Local authority enforcement.	
41	Means of Escape.	
	Dangerous conditions	C(PS)
	Work to remove danger	E(PS)
42	Exchange of information on fire certificates etc. and Action in default of local authorities.	C/E(PS)
43	Right of appeal.	
44	Provisions for London.	
45	Application of S.40.	
46	Regulations and Byelaws.	
	Local authority enforcement.	
47	Provisions as to Fire Authorities.	
48	Provisions in Case of Fire.	
	Easily and immediately opened	C/E(PS)
	Material easily broken by fire	C/E(PS)
	Distinctly and conspicuously marked, letters of adequate size	E(PS)
	Warning capable of operation without undue risk, provided, maintained and clearly audible	E/F(PS)
	Free passage way for escape	E/F(PS)
49	Instructions as to Means of Escape.	
	Effective steps to ensure familiarity	F(PS)
50	Regulations as to Fire Preventation	
	None made.	
51	Fire Fighting.	
	Appropriate means, provided, maintained, readily available	E(PS)
52	Testing and Examination of Fire Warnings.	F(RL)
53	Power to make special regulations for accident prevention.	
	None made	

Section	Contents	Stage and Level
54	Orders as to Dangerous Conditions and Practices.	
	Such condition, so constructed, etc. that it cannot be used without risk of bodily injury	C(PS)
	Duly repaired, altered etc.	E(PS)
	Imminent risk of serious bodily injury	C(PS)
55	Orders as to Safety of Premises.	
	Such condition etc. that it cannot be carried on with due regard to safety, health and welfare	C(PS)
	Steps to remedy	E(PS)
56	Application to Scotland.	
57	Supply of drinking water.	
	Provided and maintained at suitable points, conveniently accessible	C/E(PS)
	Adequate supply, wholesome water	C(PS)
	Approved source	E(RL)
	Suitable vessels	E(PS)
	All practicable steps to preserve from contamination	E(PS)
	Clearly marked	E(PS)
	Conveniently drink	E(PS)
	Suitable cups	E(PS)
58	Washing facilities.	
	Provided, maintained, adequate, suitable facilities	C/E(PS)
	Clean running hot and cold or warm water	C(PS)
	Suitable means of cleaning and drying	E(PS)
	Conveniently accessible, kept clean and orderly	C/E(PS)
	Reasons for exemption (see also Washing Facilities (Running Water) Exemption Regulations 1960)	C/E(PS)
59	Accommodation for clothing.	
	Provided, maintained, adequate and suitable accommodation	C/E(PS)
	Reasonably practicable drying arrangements	E(PS)

Section	Contents	Stage and Level
60	Sitting facilities.	
	Reasonable opportunity for sitting without detriment to work	C(PS)
	Provided, maintained, suitable facilities sufficient to enable them to take advantage of the opportunities	C/E(PS)
	Substantial proportion of work properly done sitting	C(PS)
	Provide and maintain seat of suitable design, construction and dimensions, foot rest which readily and comfortably supports feet	C/E(PS)
	Seat adequately and properly supported	E(PS)
61	First Aid.	
	Provided, maintained, readily accessible	E/F(PS)
	Prescribed standard (see also First Aid Boxes in Factories Order 1959 and First Aid Boxes (Miscellaneous Industries) Order 1960)	E/F(RL)
	Responsible person, trained, readily available	F(PS)
	All reasonable efforts to secure compliance	F(PS)
	(see also First Aid (Standard of Training) Order 1960	
	Exemption reasons	E/F(PS)
62	Welfare regulations.	
	Provisions for making and continuing orders	C/E(PS)
	Reasons for making them	
63	Removal of dust and fumes.	
	Such character and extent as to be likely to be injurious or offensive	C(PS)
	Substantial quantity of any dust	C(PS)
	Practicable measures to protect against inhalation, accumulation, practicable exhaust appliances, provided, maintained as near as possible to point of origin	C/E(PS)
	Provisions to conduct exhaust gases into open air, or to partition off	E(PS)
64	Meals in dangerous trades.	
	Suitable provision for meals elsewhere	E(PS)

Section	Contents	Stage or Level
65	Regulations on Eye Protection.	
	(see Protection of Eyes Regulations 1974)	
66	Regulations as to Shuttle Threading.	
	(see Shuttle threading by Mouth Suction Factories (Cotton Shuttles) Special Regulations 1952)	
67	Prohibition of White Phosporus.	
68	Humid Factories.	
	Provided and maintained in plainly visible position and read at times directed or sanctioned	C/E(PS)
	(see also Regulations e.g. Cotton Cloth Factories Regulations 1929 and Hygrometers Order 1929)	
69	Underground Rooms.	
	Unsuitable for work other than specified (as to light,height, ventilation, hygiene, means of escape)	C(PS)
	Reasonable period of suspension to render room suitable	C/E(PS)
	Liable to give off fume	C(PS)
	(see also Work in Underground Rooms (Form of Notice) Order 1946)	
70	Basement Bakehouses.	
	Enforcement by local authorities	
71	Laundries.	
	Effective steps to regulate temperature and carry away steam	E(PS)
	So separated as to protect from heat	E(PS)
	Noxious fumes	C(PS)
72	Lifting excessive weights.	
	So heavy as to be likely to cause injury	C(PS)
	(see also special regulations for specification of weights)	
73	Prohibition of Employment in Certain Processes.	

Section	Contents	Stage and Level
74	Prohibition of Employment in Lead Processes.	
75	Provisions as to Employment in Lead Processes.	
	Liable to be splashed	C(PS)
	Efficient exhaust draught, as nearly as may be to the point of origin	E(PS)
	Prescribed medical examination (see Orders)	F(RL)
	Suitable protective clothing, clean condition provided and worn	E/F(PS)
	Suitable cloak room, mess room, washing accommodation, kept clean	E(PS)
76	Power to make Regulations	
77	Prohibition of sale and importation of materials and articles.	
78	Power to take samples.	
	Responsible person	F(PS)
	Sufficient samples, likely to or may prove likely to cause bodily injury	C(PS)
79	Approval of Plans for Cotton Cloth Factories.	
80	Notification of Accidents.	
81	Dangerous occurrences.	
	(see Dangerous Occurrences (Notification) Regulations 1947)	
82	Notification of industrial diseases.	
83	Inquests.	
84	Power to direct formal investigations of accidents.	
85	Duties of Appointed Factory Doctors.	
86	Hours of Employment.	
87	Hours of Young Persons under 16.	
	Dependent on employment of young persons	C(PS)
	Seriously prejudiced	C(PS)
	Not likely to be injurious to health	C(PS)

Section	Contents	Stage and Level
	Particularly suitable for young persons, help to train/familiarise, likely to lead to permanent employment (see also Young Persons Under 16 (Factory Hours Modification) Regulations 1940)	C(PS)
	Necessary or expedient for regulating	C(PS)
88	Notice Fixing Hours.	
89	Overtime.	
	Prejudicially affect health	C(PS)
	Serious deteriment to the industry	C(PS)
	Subject to seasonal or other special pressure	C(PS)
	Exigencies of trade	C(PS)
	Unforeseen pressure due to sudden orders or breakdown or unforeseen emergency	C(PS)
	Unreasonable or inappropriate (see also Overtime Regulations for Aerated Water Manufacture 1938 Biscuit Manufacture 1938 Bottling of Beer, wines and spirits 1940 Bread, Flour, Confectionery and Sausage Manufacture 1939 Chocolates and Sugar Confectionery 1938 Dyeing and Cleaning 1939 Florists 1938 Glass Bottles and Jars 1938 Ice Cream 1939 Laundries 1938 Net Mending 1939 Poultry Preparation 1958 and Factory Overtime (Separation of Different Parts or Sets) Regulations 1938 and Factory (Individual Overtime) Regulations 1938	C(PS)
90	Supplementary Provisions.	
91	Restriction on employment inside and outside on one day.	
92	Use of rooms during intervals.	
93	Sunday Employment.	
94	Annual Holidays.	
95	Exception.	
	Holding responsible position and not ordinarily engaged in manual work	C(PS)

Section	Contents	Stage and Level
96	Power to suspend.	
	Accident, breakdown, unforeseen emergency	C(PS)
	Serious interference with ordinary working	C(PS)
97	Shift work.	
	Temporary emergency or pressure of work	C(PS)
	Conditions considered necessary	C/E(PS)
	Expediency of requiring suitable clothing accommodation, meals, transport, opportunity for further education.	C/E(PS)
	(see also Shift System in Factories and Workshops (Consultation of Work people) Order 1936)	
98	Revocation of S.97 authorisation.	
99	Male Young Persons on Shifts.	
	Required to be carried on continuously	C(PS)
	Conditions for safeguarding welfare and interests.	C/E(PS)
	(see also regulations for Iron and Steel 1959, Glass Containers 1955 and Night work of Male Young Persons (Medical Examination) Regulations 1938	
100	Exception for 5 day week.	
101	Exception over hour of commencement.	
	Exigencies of trade or convenience of persons employed	C(PS)
	(see also Regulations for Bread, Flour, Confectionery and Sausage Manufacture 1939)	
102	Exception over simultaneous hours.	
	Work required to be carried on continuously	C(PS)
	Necessarily divided into sets	C(PS)
	Messroom/canteen provided and maintained to the satisfaction of the inspector	C/E(PS)
	(see also Factories (Intervals for Women and Young Persons) Regulations 1938	
103	Exception as to employment in Intervals.	

Section	Contents	Stage and Level
104	Exception as to use of rooms in intervals	
	Work required to be carried on continuously	C(PS)
105	Exception as to male young persons employed with man.	
	Continuous employment necessary	C(PS)
106	Exception as to male young persons on repair work.	
107	Exception as to Saturday.	
	Customs or exigencies of trade. (see also Factories (Saturday Exception) Regulations 1940)	C(PS)
108	Exception as to Holidays.	
	Customs or exigencies of trade (see also Factories Act Holidays (Different Days for Different Sets) Regulations 1947)	C(PS)
109	Exception as to Sunday.	
110	Exception as to Laundries.	
	(see also Laundries, Manufacture of Bread etc. (Hours and Intervals) Regulations 1938	
111	Exception as to manufacture of bread etc.	
112	Exception as preserving of fish etc.	
	Processes required to be carried on without delay (see also Fruit and Vegetable Preserving (Hours of Women and Young Persons) Regulations 1939)	C(PS)
113	Exception as to milk treatment factories.	
	(see also Milk and Cheese Factories (Hours of Women and Young Persons) Regulations 1949)	
114	Supplementary provisions.	
	No regulations made.	

Section	Contents	Stage and Level
115	Notices, registers etc.	
	Special cause allowed in writing	C(PS)
116	Employment of Young Persons in Certain Occupations.	
	Seasonal or other special pressure	C(PS)
	Further conditions needed to safeguard welfare and interests	C/E(PS)
	(see also Factories Act 1937 (Adaptations under S.98) Order 1938)	
117	Exemptions from Provisions Regulating Hours.	
	Desirable in public interest for maintaining or increasing the efficiency of industry or transport	C(PS)
	(see also orders for Cotton Cloth Factories (Length of Spell Exemption) 1947, Factories (Evening Employment) 1950, and Railway Employment Exemption Regulations 1962	
118	Certificate of fitness.	
	Appointed factory doctor	
119	Power of inspector to Require Certificate.	
	Prejudicial to health	C(PS)
120	Tenement Factories Fire Provisions.	
	(see Schedule 2)	
121	Tenement Factories Provision.	
	Outside the control of the owner	B/C(PS)
	Necessary structural work	C/E(PS)
122	Parts of building let as Separate Factories.	
	Outside the owner's control	B/C(PS)
123	Electrical Stations.	
	Large enough to permit entry of a person	C/PS)
124	Institutions.	
125	Docks, wharves, quays etc.	

Section	Contents	Stage and Level
126	Ships.	
	Dangerous or injurious nature	C(PS)
127	Works of Building and Engineering Construction.	
	So as to interfere with the design or with the adoption of a method not inconsistent with safety	C/E/F(PS)
	Reasonable grounds for believing completion in less than 6 weeks	C(PS)
128	Lead Processes.	
129	Use of Lead Paint in Buildings.	
	Reasonable times (see also Lead Processes (Medical Examinations) Regulations 1964)	C(PS)
130	Power to Take Samples.	
	Suspicion of containing lead	C(PS)
	Sufficient samples	C(PS)
131	Prohibition of Women and Young Persons.	
132	Supplementary Provisions.	
133	List of Outworkers.	
	(see also Homework Order 1911)	
134	Employment in Unwholesome Premises.	
	District Council enforcement	
135	Particulars.	
	Easily legible	C/E(PS)
	Particulars applicable	C/E(PS)
	Particulars to enable the accuracy of indicators to be checked	E(PS)
	Fraudulent use or alteration (see Particulars Orders for various trades)	B/C(PS)
136	Deductions from Wages.	
137	Notice of Occupation.	
138	Abstracts.	
	Conveniently read	C(PS)

Section	Contents	Stage and Level
139	Special Regulations.	
	Conveniently read	C(PS)
140	General Register.	
	Approved place of keeping	C/E(PS)
141	Preservation of Registers etc.	
142	Returns of Persons Employed.	
143	Duties of Persons Employed.	
	Wilfully interfere with or misuse	B/C(PS)
	Wilfully and without reasonable cause do anything likely to endanger himself or others	B/C(PS)
144	Weights and Measures.	
145	Appointment and Duties of Inspectors.	
146	Powers of Inspectors.	
	Reasonable times	C(PS)
	Reasonable cause to believe persons employed or explosive etc. materials stored	C(PS)
	Reasonable cause to apprehend serious obstruction	C(PS)
	Wilful delay or withholding or attempt to conceal	C(PS)
147	Extension of S.146.	
	Reasonable cause to believe young person employed	C(PS)
148	Powers of Entry of Others.	
149	Power to Conduct Proceedings.	
150	Certificate of Appointment.	
151	Appointed Factory Doctor.	
152	Fees for A.F.D.	
153	Provisions as to County and District Councils.	
154	Prohibition of Disclosure of Information.	

Section	Contents	Stage and Level
155-171	Penalties etc.	
	Steps to remedy offences (S.157)	E/F(PS)
	Wilful or knowing involvement in forgery (S.159)	B/C(PS)
	Due diligence, consent, connivance or wilful default (S.161)	B/C(PS)
172-4	Application of the Act.	
175-6	Interpretation.	
177	Promotion of Health, Safety and Welfare.	
178	Certificates of Birth.	
179	Inspection of Certain Premises.	
180	Regulations etc.	
181	Substitution of Corresponding Provisions.	
182	Application to Scotland.	
183	Transitional Provisions.	
184	Construction of References.	
185	Short Title.	
Schedule 1	Table of Humidity.	
Schedule 2	Modifications (S.120).	
Schedule 3	Powers to Prescribe Standards.	
Schedule 4	Procedure for Making Special Regulations.	
Schedule 5	Application of 1901 Act Provisions in London and Scotland Administered by District Councils.	
Schedule 6	Transitional Provisions.	
Schedule 7	Repeals.	

HEALTH AND SAFETY AT WORK ETC. ACT 1974 c.37

The first 9 Sections only are analysed.

Section	Contents	Stage and Level
1.1	Preliminary. Sets out objectives governing overall objectives of the act and therefore of the inspectorate. (a) Secure the health, safety and welfare of persons at work. (b) Protect persons other than persons at work against risks to health or safety arising out of or in connection with the activities of people at work (1-3) (c) Control the keeping and use of explosive or highly flammable or otherwise dangerous substances, and generally prevent the unlawful acquisition, possession and use of such substances. (d) Control the emission into the atmosphere of noxious or offensive substances from premises of any class prescribed.	
1.2	(e) Maintain or improve the standards of health, safety and welfare established by those (Schedule 1) enactments. This section is equivalent in many ways to the preambles of earlier acts. Detailed analysis of these objectives would involve an open ended and highly detailed breakdown into sub-tasks which would produce a massive series of tasks. The words underlined are the key words whose definition would establish the pattern of such an analysis.	C/E/F(PS)
2.1	General duties. (a) Discover, recognise and prove failure to ensure, so far as is reasonably practicable, the health safety and welfare at work of all an employer's employees. 2.2 to 2.7 are an analysis (although not necessarily a complete one) of 2.1. Underlined words are key ones for definition.	C/E/F(PS)

Section	Contents	Stage and Level
2.2	Discover, recognise and prove failure to:	
	(a) Provide and maintain plant, systems of work, so far as is reasonably practicable safe and without risk to health	C/E/F/(PS)
	(b) Ensure safety and absence of risks to health in connection with the use, handling, storage and transport of articles and substances	C/E/F(PS)
	(c) Provide such information, instruction, supervision and training as is necessary to ensure, so far as is reasonably practicable, the health and safety at work of employees	C/F(PS)
	(d) Maintain any place of work under the employer's control and the access to and egress from it in a safe condition without risk to health, so far as is reasonably practicable	C/E/F(PS)
	(e) Provide and maintain a working environment for his employees that is, so far as is reasonably practicable safe, without risk to health, and adequate as regards facilities and arrangements for their welfare at work	C/E/F(PS)
2.3	Discover, recognise and prove a failure to:	
	(a) Prepare, as often as may be appropriate revise a written statement of general policy with respect to the health and safety of his employees and the organisation and arrangements for the time being in force for carrying out that policy	C/F(PS)
	(b) Bring the statement and revision of it to the notice of all his employees. Remember and recognise exceptions to the section.	C/F(PS)
2.4 & 2.7	Discover, recognise and prove failure to comply with Regulations (Safety Representatives and Safety Committee Regulations 1977) for the appointment of safety representatives and the establishment of safety committees.	
2.6	Discover, recognise and prove failure by the employer to consult such representatives with a view to the making and maintenance of arrangements which will enable him and his employees to cooperate effectively in promoting and developing measures to ensure the health and safety at work of the employees, and in checking the effectiveness of such measures.	C/F(PS)

Section	Contents	Stage and Level
3	Discover, recognise and prove failure by employers and self employed persons to conduct their undertakings to ensure so far as is reasonably practicable that they and persons not in their employement who may be affected thereby are not thereby exposed to risks to their health or safety.	C/E/F(PS)
	Provision for the giving of prescribed information to certain persons who may be affected by undertakings in prescribed cases, circumstances and manner has not been activated. (No order yet made).	
4	Discover, recognise and prove the failure:	
	by persons having to any extent control over any non domestic premises made available as a place of work or place where plant or substances provided for their use may be used, the access to or egress from them, or any such plant or substances, to take such measures as are reasonably practicable to ensure that everything he has control over is safe and without risk to health.	C/E/F(PS)
5	Discover, recognise and prove the failure:	
	by persons having control over premises prescribed for Section 1 (1) (d) to use the best practicable means (including use and supervision of plant and operations) to prevent the emission into the atmosphere from the premises of noxious or offensive substances (as prescribed 5.3) and to render harmless and inoffensive such substances as may be emitted.	C/E/F(PS)
6	Discover, recognise and prove a failure by any persons who designs, manufactures, imports or supplies any article or substance for use at work.	
	(a) To ensure, so far as is reasonably practicable that the substance is, and the article is so designed and constructed as to be, safe and without risks to health when properly used except to the extent that the person to whom the article is supplied relieves the supplier of the duty by a written undertaking to take specified steps .	C/E/F(PS)

Section	Contents	Stage and Level
	(b) To carry out or arrange for the carrying out of such testing and examination as may be necessary for the performance of that duty.	C/E/F(PS)
	(c) To take such steps as are necessary to secure that there will be available in connection with the use of the article or substance at work adequate information about the use for which the article is designed and tested, and about the results of any relevant tests on the substances and about any conditions necessary to ensure that, when put to that use, it will be safe and without risks to health.	C/E/F(PS)
	Discover, recognise and prove the failure by:	
	(a) Any person who undertakes the design of any article, or the manufacture of any article or substance, for use at work to carry out or arrange for the carrying out of any necessary research with a view to the discovery and so far as is reasonably practicable the elimination or minimisation of any risks to health or safey to which the design or article may give rise unless it is reasonable for him to rely on tests, examinations or research carried out by persons other than him (6.6)	C/E/F(PS)
	(b) Any person who erects or installs any article for use at work in any premises where that article is to be used by persons at work, to ensure so far as is reasonably practicable, that nothing about the way in which it is erected or installed makes it unsafe or a risk to health when properly used.	C/E/F(PS)
7	Discover, recognise and prove a failure by an employee:	
	(a) To take reasonable care for the health and safety of himself and of other people who may be affected by his acts or omissions at work.	C/E/F(PS)
	(b) To cooperate with his employer or any other person with regard to any duty or requirement imposed on them by or under any of the relevant statutory provisions, so far as is necessary to enable that duty or requirement to be performed or complied with.	C/E/F(PS)

Section	Contents	Stage and Level
8	Discover, recognise and prove intentional or reckless interference with or misuse of anything provided in the interests of health, safety or welfare in pursuance of any of the relevant statutory provisions.	C(PS)
9	Discover, recognise and prove the levy on any employee of any charge in respect of anything done or provided in pursuance of any specific requirement of the relevant statutory provisions.	C(PS)

APPENDIX 1.1

UNIVERSITY OF ASTON IN BIRMINGHAM

DEPARTMENT OF SAFETY AND HYGIENE

SUMMARY OF MODULAR DIPLOMA COURSE

OCTOBER 1977

COURSE TUTOR

MIKE PHILLIPS

OBJECTIVES:

1 To provide a basic conceptual framework for the study of occupational health and safety.

2 To provide instruction in the basic disciplines which contribute to the study of occupational health and safety.

3 To bring together these disciplines within the conceptual framework in order that the principles of occupational health and safety can be applied in practical situations, defined in relation to the work and experience of students attending the course.

The Module will finish with group discussions on future developments in health and safety in which students will be encouraged to discuss the topics covered (or any others) in the light of their own experience.

II PRELIMINARY MODULES IN BASIC SCIENCES

Past courses have shown that there is a need for some selective teaching in certain basic areas owing to the wide variety of experience and qualifications of students attending the course. In particular, it is necessary to provide optional courses in human biology, general chemistry electricity and mechanical engineering. It is not the aim of these courses to provide comprehensive teaching in each of these subjects, but to select specific areas so that students are equipped to participate in the main body of the course. Students will select which of the preliminary modules they attend in view of their qualifications and experience, with the advice of the course tutor. The preliminary modules occupy weeks 2 and 3 of the course.

III HUMAN SAFETY

This module is of three weeks duration (weeks 4, 5 and 6). It begins with an examination of the concepts of damage to the body resulting from exposure to harmful agents. This introduction to the subject is followed by a detailed examination of those agents under three headings: physical, chemical and microbial. The central concepts of toxicology in relation both to the individual and to populations are then described as well as an examination of carcinogensis. These theoretical concepts are linked with the more practical areas, in particular with instruction in the principles and practice of hygiene sampling which includes laboratory training in the use of certain techniques.

brittle fracture and creep. Machinery safety will include an examination of the causes of machinery accidents and particular attention will be paid to the design and ergonomics of machinery guards. Other topics will include non-destructive testing and man-machine interface. The lectures will be integrated with case studies of accidents such as the Flixborough explosion and the accident at Markham Colliery.

Fire and Explosion will include teaching in the basic chemistry of ignition and combustion processes, building upon the background provided in the preliminary general chemistry course. Other topics which will be covered include: fire alarm systems; fire risks in buildings; unconfined vapour cloud explosions; and certain aspects of fire fighting. Practical classes will be integrated with the teaching of this subject area. Where suitable visiting speakers will be invited to speak in their specialist areas.

Electrical Safety will include the safety aspects of fixed installations and portable equipment. In addition the Electricity Regulations will be explored in detail as will the safety aspects of maintenance of electrical equipment.

The principles outlined in the early parts of this module will then be examined in relation to specific dangers, such as: construction operations; scaffolding; demolition and excavations; abrasive wheels; woodworking machinery; lifting operations; pressure vessels; and power presses.

VI ENVIRONMENTAL CONTROL

This module of one week duration will cover the topics of noise control; ventilation and dust control; thermal environment and lighting. Case studies and practical classes will be extensively used to complement formal lectures.

IX THE CONTROL OF DANGER

This module has been designed to provide an opportunity for students to use the knowledge gained in previous modules to examine problems and to reinforce the cross-links between modules. Very little of the material will involve new concepts, rather it is the application of those concepts already developed which will be encouraged. Case study, syndicate and seminar work will be used with occasional lectures.

X COMMUNICATION SKILLS

The ability to communicate is, we believe, an essential skill for anyone engaged in work related to health and safety. The final week of the course provides an opportunity to examine the underlying principles of communication and to apply these principles in role-playing and other simulated exercises. Video recordings will be used extensively to allow students to assess their own level of skill.

REVISION AND EXAMINATION

The last three weeks of the course (weeks, 18, 19 and 20) are devoted to revision and examination. In the first of the revision weeks, tutorials and "practice" orals are organised. The second revision week is for private study.

The examinations consist of four written papers:

(1) Human Safety

(2) Safety Engineering

(3) Law

(4) Individual and Organisational Behaviour.

APPENDIX 12

METHODS OF SELECTION AND TRAINING

SELECTION

When the inspectorate was first formed in 1833 the appointment of the inspectors and superintendents was by the system of political patronage usual for all government posts.

> "Francis Jeffrey was then Lord Advocate for Scotland, and the appointment was placed by Lord Melbourne under his patronage, and he offered it to Mr. Horner. Lord Melbourne was Home Secretary at the time, and the appointment was in his gift". (Lyell 1890. p.286).

The system did not always please the inspectors as is seen by Horner's evidence to the 1840 Commission.

> "it would be a great improvement if the sub-inspectors were appointed by the Secretary of State on the recommendation of the inspector"

These remarks were probably prompted in part by the fact that one of Horner's sub-inspectors, Wood, had just previously tendered his resignation for the second time over Horner's head to the Secretary of State on the grounds that his appointment came directly from the Secretary (see also Wood's evidence to the 1840 Commission).

In 1855 all civil service entry was regulated by the institution of compulsory examinations in the following subjects:-

Handwriting and Orthography
Arithmetic, including vulgar and decimal fractions
Latin or a Modern language
English History
Geography
A Precis or abstract of official papers
Elements of Political Economy
English Composition

Applicants had to be between 25 and 40 and satisfy the Department as to their health, moral character and habits, and their freedom from debt. (Joint Report of F.I. Oct. 1855).

In order to take the examination candidates still had to receive a nomination, so patronage was still important. A somewhat flippant and cynical view of the process as it was in 1867 is given by Philip H. M. Wynter (On the Queen's Errands 1906) who rapidly exchanged the life of a factory inspector for that of a Queen's Messenger after a prickly interview with Baker, the inspector responsible for the North of England.

> "Mr. Gathorne Hardy - now Lord Cranbrook - was a friend of my father, and most kindly gave me a nomination as "Sub-Inspector of Factories". I cannot say that I had any particular talent for this line of business, which consisted in overhauling factories, and, I suppose, seeing that the children employed were well taught and not ill-treated.
>
> There was a stiffish examination to pass, the most formidable subject being Political Economy - a study which I had never

considered and had barely heard of. One of our trials was to write five or six pages of foolscap on a given subject. The subject given us was quite simply "Fire". This was indeed a puzzler. Somehow I managed to write six pages on this monosyllable by adverting to the dangers of that element, and the uses that might be made of it, and finished by pointing out - though not recommending - that a man's limited income might be usefully supplemented by over-insuring his property, and then setting fire to it. In spite of this immoral suggestion, I was told afterwards that my efforts had pleased the examiners, and that in consequence they had given me an "honorary certificate," a distinction which I have never found of much use to me. I was appointed to the factory department towards the end of 1867". (p.127-128)

The system of nomination followed by an examination continued up to 1906, with some modification of subjects to be taken. Thus by the 1880's papers had been added in subjects more related to industrial processes, and candidates were expected to have already learned the legislation they would have to administer. Entry to the inspectorate was thus made different from entry to the general administrative civil service.

In 1891 the examination stood as follows:- (Parliamentary Papers 1890-1 LXIII p.461).

1. Handwriting
2. Spelling
3. Arithmetic, including vulgar and decimal fractions
4. English Composition
5. Theoretical and Practical Acquaintance with factories and workshops, including a knowledge of their sanitary requirements
6. Applied mechanics, including elementary mechanical drawing

7a. Factory and Workshops Acts administered by HMFI

7b. An acquaintance with the history of factory legislation in the U.K.

(N.B. The Language paper which appears in the earlier requirements, and in later provisins (v.i.) and in a parliamentary answer in 1881. (Hansard v. 258, col. 1377) does not appear here, perhaps from inadvertence).

Candidates were required to pass all these subjects. In the case of a competition for places the performance on 5, 6 and 7 was the deciding factor. The age limits were then 21 to 30 or exceptionally 38 if the candidate had been occupied as a master, manager, foreman or workman in a factory or workshop for at least 7 years and had acquired a practical acquaintance with the working of factories and workshops. Commissioned officers in the Army or Navy were also allowed to enter at an older age.

In 1881 as an experiment the examination was waived for an ex-operative (J. D. Prior) to be appointed. This experiment was the forerunner of the assistant grade established in 1892 (See Chapter 6 and below).

In January 1906 the system of examination was changed by dividing the exaimination into two parts for(detailed discussion See Report of the

APPENDIX 12 (Continued

Department Committee on Accidents 1911.) After application and interview by a committee consisting of the parliamentary under-secretary and two others, the successful candidates were nominated. They then sat a competitive examination in 6 subjects, 2 compulsory (English Composition and Arithmetic) and 4 optional in 3 of which they had to pass. The choice of optional subjects was:-

English Literature
English History
General Modern History
French, German or Italian
Mathematics
Economics, including knowledge of the history of industry in modern times
Chemistry
Physics, including mechanics
Practical mechanism and industrial machinery

At the end of 2 years probation they took a non-competition qualifying examination, in factory law and sanitary science. On passing this and subject to reports of satisfactory performances of probation, appointment was confirmed.

Ramsey Macdonald as a member of the 1911 Committee attacked the nomination system as a system lending itself to "personal and political influence". (evidence para. 1092). But it was defended by the chief inspector and other members of the committee, and no mention of replacing it is contained in the committee's report.

Despite the recommendations of the 1911 Committee that:

(a) the optional papers should be given a more technological bias by substituting a technology paper for general modern history, and

(b) the qualifying examination subjects should be reinserted in the entrance examination;

no change was made in the entry system.

A number of members of parliament had protested at the change (e.g. C. Money, Hansard 27.2.1906 v. 152 col. 1024-5, H. Tennant Hansard 1.3.1906 v. 152. col. 1305-6, F. Jowett. Hansard 3.3.1908 v. 185 col. 529-30 and 10.3.1908 v. 185 col. 1306-7) but the inspectorate stood firm and the Committee's proposals were shelved in the First World war (see reply to question by Sir P. Magnus, Hansard 5.7.1916 v. 83 col. 1535), and quietly disappeared from sight.

In the wake of the inspectorate's reorganisation of 1921 there was a change in the general Civil Service Commission rules for entry (1925). This abolished the entrance examination in favour of a general educational requirement.

The wording as applicable to factory inspectors was as follows:-

> "candidates must satisfy the Commissioners that they have such experience and have received such systematic education, general or technical, or general and technical together, as in their opinion fits them for the post. In general candidates should possess a University degree or other equivalent qualification in engineering, industry or science, but the Commissioners may dispense with such qualification in the case of a candidate with suitable works or other special practical experience". (Report of Departmental Committee on Factory Inspection 1930).

After an initial sift of applications, candidates took an examination in English Composition, attended an interview and underwent a medical examination and their references were followed up.

The qualifying examination in factory law and sanitary science was retained at the end of the probationary period, as was the report of satisfactory completion of the probation.

The system of selection underwent only minor modification until 1974. After the Second World war the English Composition examination was dropped. Between October 1960 and October 1964 the qualifying examination subjects were split into 3 papers (Safety, Health and General) rather than 2.

In 1974 after the introduction of the training course leading to the Diploma in Occupational Safety and Hygiene at the University of Aston in Birmingham the qualifying examination was ended, and satisfactory completion of the Diploma was substituted for it as the joint arbiter, with the report on performance during probation, of the inspector's fate.

A review of selection methods for general inspectors instituted in 1974 (Henderson & Cund 1974) examined the methods of selection used. The report accepted the existing methods used, namely a paper sift of applications, shortlisting, a pre-interview talk with a factory inspector and a selection board of Civil Service Commission and Factory Inspectorate members. It made the following suggestions to improve the effectiveness of the methods:

(a) give clearer criteria to those undertaking the paper sift,

(b) standardise and improve the pre-interview talk and hold it regionally not centrally,

(c) provide clearer specifications of desirable qualities to interview board members,

(d) give interviewing training to board members.

A suggestion that tests should be used at the selection (Teasdale 1972) was investigated further (Beaumont 1976) but such low correlations were found between test score and performance ratings that no further action was taken.

ASSISTANT INSPECTORS

In 1892 an assistant grade was established which was filled by men "not so highly educated or highly paid ---, but drawn from the working class themselves" (C.I. report 1893). Problems with their ability to write reports led to the establishment of an examination for them in:

"(1) Spelling and Handwriting, as tested by dictation

(2) English Composition (ability to write a simple and intelligible report to a superior officer)

(3) Arithmetic (first 4 rules, simple and compound interest)

(4) An elementary knowledge of the principle provisions of the law relating to workshops for the time being in force". (Report of 1911 Committee).

Candidates had to qualify in all these subjects.

Promotion from assistant to inspector was by the normal examination, or, at the discretion of the Secretary of State, by special merit and examination only in factory law and sanitary sciences. The assistant grade was phased out after 1921, the last assistants being promoted to Class II inspectors in December 1930.

The grade of assistant was re-established after the passage of the Offices Shops and Railway Premises Act 1964 and was then filled by people from the executive officer class of the civil service, recruited through normal civil service channels. No special provision was made for promotion to inspector.

SPECIALIST INSPECTORS

This thesis is primarily concerned with the general inspectorate, but a discussion of selection methods etc. would be incomplete without a brief mention of the specialist branches.

From their inception the medical and electrical branches have always been staffed by direct recruitment from outside the inspectorate. On the other hand engineering inspectors were invariably appointed from within the ranks of the general inspectorate from the time of the first engineering inspector until the 1950's. From then onwards it was rare for engineering inspectors to come from the ranks of the general inspectorate. This was partly because there were at the time few qualified applicants within its ranks, and partly a matter of policy as the engineering branch and the chemical branch which had developed from it expanded rapidly in the 1960's and 1970's. Senior engineering and chemical inspectors from time to time returned to the general inspectorate at deputy chief inspector level.

The particulars inspectors were generally recruited from general inspectors, but their assistants were recruited specially for the job.

The construction districts set up in the wake of the Construction Regulations were staffed initially largely by direct recruitment from outside the inspectorate. However a number of general inspectors were seconded to take charge of these districts, and there has been a continuing policy of rotation of general inspectors through construction districts at a more junior level.

TRAINING

The first inspectors had no training; nor could they have because no one knew what their job would be until they were doing it. The Act of Parliament which they were to administer was their only guidance, plus the individual interpretation that they chose to put on it. The instructions from the Secretary of State to the inspectors were a form of training, but they were generally confined to issues which had reached his ears which disquieted him (e.g. Directions to Factory Inspectors in June and October 1836 urging greater diligence on the inspectors). In that sense they were more instruments of monitoring than training documents. The divergence in the way they set about their jobs is seen in the early reports from each of them and in the regulations they issued, severally, to supplement the basic Act (see e.g. Horner's reports for July 1834 and October 1836. Rickards report of February and August 1834 etc.). The statutory yearly meeting (S.45 of Act) at which the inspectors exchanged views and discussed common problems served as a sort of informal on-going training, from which emerged

some common agreements on the way the job should be done, e.g. agreements set out in their Joint Report for 1836 on regulations, certificates and abstracts of the Act. However, this still left large discrepancies in the way that they went about their jobs. Stuart, particularly, diverged from his colleagues in his methods of enforcing the age limits and his attitude to prosecution. (Differences aired at length in his evidence to the 1840 Select Committee and his December 1838 report).

This freedom (as Thomas states) "made it possible for inspectors to adapt, to modify and to reject as their growing experience of the problems of factory control dictated". However such freedom could not be allowed to continue indefinitely since it bred a lack of uniformity in standard and interpretation of the Acts. What Marx (Capital Vol. I. P.621) called the "cry of the capitalists for equality in the conditions of competition (which) is equality of restraint on the exploitation of labour" forced a more uniform approach via the controlling influence of the Secretary of State's instructions and the joint deliberations of the panel of inspectors. It finally also resulted in the centralisation of all control under one chief inspector in 1878. Common training can be seen as another factor bolstering this uniformity. This is confirmed by a quote from the 1969 Annual Report

> "of recent years we devoted much thought and energy to the more formal and uniform training of Inspectors to enforce much more complex legislation in much wider and more sophisticated areas of employment, in a time when mergers and takeovers enable employers and employees alike to see much more readily than in the past differing standards from district to district".

The superintendents, when appointed, received detailed letters setting out their duties, as did the certifying surgeons appointed to issue certificates of age and fitness. These instructions (Rickard's Report June 1835, Horner's Report December 1836, Saunder's Report April 1837, Stuart's Reports December 1837 and December 1840) set out the purpose of the sections of the Act, methods of compliance which would be accepted, legal interpretation priorities which the superintendents should work by, and the way in which they should conduct themselves to manufacturers and to their own superiors.

These instructions from the Secretary of State to the Inspectors and from them to their subordinates became a permanent part of the on-going training of inspectors. The former became enshrined as the standing Chief Inspector's Instructions periodically updated. The latter were handled on an individual basis from 1833 to 1877 (c.f. Sub-inspector Lakeman's reference to "the training we get through correspondence with our chief". Redgrave's report October 1873). From then when Alexander Redgrave became the first Chief Inspector they were issued as an occasional series of letters to Superintending Inspectors and/or to all inspectors. They were regularised in 1901 and from then until April 1957 appeared as a monthly circular to all staff. After April 1957 they were replaced by circulars on specific topics to be formed into a continually updated series of reference volumes.

Apart from the written instructions the only form of training was "Sitting by Nellie". e.g.

> "I proceeded at the earliest opportunity with Captain Hart, to visit various mills in his district as the best means of giving him the instructions necessary for the due discharge of the duties he had undertaken". (Saunders Report June 1841).

This "sitting by Nellie" technique of training was for many years the only form of training which an inspector of factories had after his appointment. It remains to the present day one of the major parts of the training process.

By 1873 the process had been refined a little as the following quote from Redgrave's 1873 (October) report indicates:

> "As a rule each junior sub-inspector, upon his appointment is attached to one of the Metropolitan sub divisions. He there learns his duties and also has the advantage of meeting at his office his metropolitan colleagues --- It has enabled us to discuss and settle many questions of practice and uniformity --- Formerly when a sub-inspector was appointed he was sent to one or more experienced sub-inspectors to learn the routine of duties, and was then transferred to the vacant post not a quarter informed upon the details of the Acts of Parliament, or upon the performance of his duties".

In 1900 moves were made to expand the scope for "learning by doing". A circular letter (No. 183. 10.4.1900) instructed inspectors that junior inspectors "should have greater facilities than have usually been afforded in the past for extending their experience and gaining insight into the variety of industries and manufacturing processes

which are carried on in different parts of the United Kingdom and that with this object they should serve in more than one district". It was recommended that inspectors should move about every two years until such time as they achieved charge of one of the bigger manufacturing districts. This practice of frequent moves has continued ever since.

In 1906, with the revision of the entry examination (see above) there came official acknowledgment that factory inspectors were made and not born. Previously the entry examination had tested knowledge of factory processes and factory law, but this was now postponed until the end of the 2 year probationary period, on the grounds that the knowledge to pass was better acquired on the job. The Chief Inspector, Dr. Whitelegge, in his evidence to the 1911 Committee on Accidents, strongly supported this view (e.g. para. 894) "Factory Law cannot be properly learnt outside the Factory Department". and (para. 908) "moreover, in whatever capacity he worked he would not know the whole of the Factory Acts at the end of ten years. I myself plead guilty to not knowing them exhaustively. I have to refer to them constantly". This view is repeated in later documents, e.g. in the Chief Inspectors's Report for 1968 (Chapter I) appears the following: "It is one of the attractions of the job that no inspector can say he has nothing more to learn". The quotation goes on in a way which again underlines the strong hold that the learning by doing approach has. "Indeed, despite the tuition which is given to an inspector both during the probationary period and after it, there is good reason to say that inspection cannot truly be taught but only learned through patience and experience.

However this view did not pass without opposition as this exchange from the 1911 Committee evidence indicates (para. 1013) "Does not that (juniors going out with senior inspectors) rather suggest that you have not confidence in the juniors for a long time after they are appointed; you have not confidence in their ability to do the work for which they are appointed and paid? (Mr. A. H. Gill, J.P.) - I do not think that it is quite a fair way of putting it, if I may say so. They come to us, and have to learn factory inspection inside the department. It is not want of confidence; it is that while they are learning they are learning. (Dr. Whitelegge)".

This and other exchanges (see also Chapter 6 Qualities and Qualifications of Inspectors) highlighted the question of what could be expected to be present in a candidate before entry to the inspectorate and what must be inculcated thereafter - the reciprocity of selection and training. The exchanges also touched on the difference between specific knowledge of law and techniques of fencing, ventilation etc. and a general background in such subjects as engineering or chemistry. It was the latter which was felt at the time to be appropriately dealt with by selection, the former by training, or rather experience. This position was to change in future (see below).

After the setting up of Industrial Museum at Horseferry Road in 1927 the training of inspectors moved into a more formal phase. The monthly circular of 1930 (July) described the process of training as a period of familiarisation with the work in districts, followed by a secondment to Central office with visits to the Industrial Museum. By 1939 (Djang 1942) this period had become 2 weeks in which the inspectors received lectures on factory law and regulations, health,

safety, sanitation, welfare and employment. After this formal training the inspectors returned to their districts to be tutored by the District Inspectors.

The importance and influence of personal tuition were recognised throughout this period, sometimes in somewhat roundabout ways; for example the July 1930 monthly circular set out that new women inspectors should receive tuition from senior women inspectors as well as from their male District Inspectors and similarly for new male inspectors under women District Inspectors. The tone of the circular and of the discussion at a Superintending Inspectors' Conference as far back as July 1922 suggested that the District Inspector and the trainee would be closeted together for such long periods that tongues might otherwise wag.

Over the same period of time the "position report" was introduced as a method of training and of assessment of progress. This was an extensive report on one factory in which, contrary to normal practice, all aspects of its health, safety and welfare were to be commented on, not just those which fell short of the standards required. Apart from the years of Second World War (S.I. Conf. minutes November 1939) the practice has continued to the present day.

Training was severely curtailed during the Second World War due to lack of staff. According to the minutes of the October 1941 S.I.'s conference only female temporary inspectors were to be trained not male, since the latter were being put on to special work (mainly to do with the Defence of the Realm Act) and had been selected not to need training; the former however were to go on to the broad spectrum of general work and so needed training (there were no permanent

appointments made to the inspectorate between March 1940 and January 1946).

After the war there was therefore a large backlog of training to be done of temporary inspectors now made permanent and of new staff. The problems that this posed occupied the Superintending Inspectors considerably, as the minutes of their bi-annual meetings indicate (the subject came up in the minutes of 20 of their meetings from 1945-1958, whereas it was only raised 6 times from 1918-1939). The position was exacerbated by the small numbers of technically qualified inspectors recruited in these years.

The training programme was reviewed in 1946 as the Chief Inspector announced in his annual report for that year "in view of the increasing technicalities of inspection". He reported that "a coordinated scheme has now put into operation". This is described in the white paper on Staffing and Organisation of the Factory Inspectorate in 1956. It consisted of a preliminary course of 4 days about the work of the inspectorate and of the Civil Service generally and tours of the Industrial Health and Safety Centre (previously called the Industrial Museum). After about a year the trainees returned to the Centre for a 2 week course on Health and Safety practice consisting largely of lectures by specialists (4 days of it on chemical and hygiene hazards were undertaken at the London School of Hygiene and Tropical Medicine for lack of laboratory facilities at Horseferry Road 1939-1970.(FIC TR5 15.9.1970) 6 months later they went through a one week law course. The remainder of the training was, as before, in the Districts under the immediate supervision of the D.I. and the overall eye of the S.I. It consisted of

accompanying inspectors and being accompanied on inspections, scrutiny of reports and private study guided by a syllabus of the qualifying examination. In some divisions the S.I. ran regular tutorial sessions on specific topics. All this counted together as learning "in the hard school of experience under the guidance of senior colleagues" (Annual Report for 1952). In addition 1 week was spent learning the office procedures.

Post probationary training was not done on an organised basis, but occasional courese were held "on Power Presses, Dust Explosions and the Building Regulations, with the object of relieving pressure on the Engineering and Chemical Branch." (1956 white paper).

In June 1954 provisional agreement was reached with the Ministry of Education to put on a 1 year technical course for arts graduates. "The intention of the course is to give these inspectors elementary grounding in Chemicstry, Physics, Mechanics, etc. with particular reference to industry". This course at Leicester College of Technology was regarded only as a temporary expedient until the percentage of technically qualified recruits could be raised again, and it was in fact dropped after 2 years.

As a result of the enquiries leading up to the 1956 white paper a further review of training was set up, the results of which were announced to the S.I. conference in 1957. It was proposed that there should be more background training, 2 weeks on the general organisation of the Ministry of Labour, a 6 week basic course, 6 weeks practical and 2 weeks on law with a back-up system of Divisional tutorials from the S.I. and more guidance on the syllabus

and regulations which should be covered.

The reality did not match up to these proposals and by the mid 1960's the training as set out in the Probationary Training Manual for H.M. Inspectors of Factories (G.B. Dept. of Employment) consisted of:

1 week induction on the Civil Service and the Ministry,

1 week introductory course at the Industrial Health and Safety Centre consisting of general introductions to health, safety and welfare topics,

4 week main course mainly at the Centre given by specialist inspectors but with trips to the London College of Printing and the London School of Hygiene and Tropical Medicine, consisting of 1 week of law and 3 weeks on specific health and safety hazards, including some practical work,

Divisional Tutorials for which a detailed programme was suggested,

1 week with the district clerk to learn the procedures of the office and the routine paperwork of the employment sections of the Acts,

At least 2 positive reports on factories in the range of 21-100 employees,

District training consisting of accompanied visits, planned solo inspections, introduction to the range of investigation, inspection and prosecution work and its accompanying paper work, discussions with the D.I. and attachments to other districts,

Private study for which the trainee was supposed to be given $\frac{1}{2}$ day per week for his first year.

As well as laying down the outline of the training the manual set out broad objectives for it and specified detailed record keeping about progress to try and ensure complete and uniform coverage by all trainees prior to the written test.

This pattern of probationary training remained in force in the inspectorate until 1973 with only minor modifications as set out in FIC TR5 15.9.1970. As a result of criticisms of irrelevance the induction course was shortened to 3 days. The preliminary course was extended to cover some aspects of the organisational and information systems of the Inspectorate. The main course was made more participative and speakers drawn in from the general inspectorate, not just the specialist branches.

In 1972 ten inspectors were sent on the Aston M.Sc. in Occupational Safety and Hygiene as an experiment. From October 1973 onwards all new general inspectors were trained for 6 months on a Diploma course (see Appendix 11 for syllabus). As a result the basic course and introductory courses were dropped from the programme, and the induction course lengthened to 1 week to provide preliminary orientation. The law course was retained.

Other changes had taken place in post probationary training and in the organisation of training in the meanwhile. The Central Headquarters training section, FIA3, was strengthened in 1969 by the appointment of a IA inspector to "establish patterns of training suitable for the future needs of the Inspectorate". (FIC TR2. 18.9.1969). The effect of this move on probationary training has been set out above. In addition a co-ordinated programme of post-probationary training courses was set up (called IB standing courses) to replace the ad hoc organisation of special

courses which had previously been operated to cope with new legislation and hazards such as ionising, radiation and noise. Minor modifications were also made to the management courses for newly appointed IA inspectors. These had been set up after pressure from the staff side of the Whitley council in 1950 to equip inspectors to run their own district organisations.

Divisional training inspectors (D.T.I.) were appointed to help with training by organising and running tutorials, and joint visits, to over-see the probationary syllabus and arrange the tests, to liaise with Headquarters and to help in the assessment of trainees. They also had responsibilities laid down to facilitate IB training meetings. Their duties were carefully defined as advisory in order not to detract from the primary responsibility laid on the D.I. for the training of new recruits.

APPENDIX 13

SIZE OF THE INSPECTORATE

The Cadre is the authorised number of inspectors, including assistants and specialists. Figures are for the end of the year in question unless otherwise specified.

Year	Cadre	In Post	Year	Cadre	In Post
1833	9	4	1875	50	48
1834	9	9	1876	50	52
1835	10	10	1877	50	50
1836	17	17	1878	52	48
1837	19	19	1879	52	47
1838	19	19	1880	52	48
1839	19	20	1881	52	52
1840	19	19	1882	55	51
1841	19	19	1883	55	47
1842	19	19	1884	55	47
1843	19	19	1885	55	48
1844	19	18	1886	55	46
1845	19	19	1887	55	46
1846	19	20	1888	55	46
1847	19	19	1889	55	45
1848	19	19	1890	55	46
1849	19	17	1891	59	47
1850	19	16	1892	69	58
1851	19	16	1893	86	64
1852	19	15	1894	99	67
1853	19	15	1895	100	67
1854	19	15	1896	111	75
1855	19	16	1897	111	76
1856	19	17	1898	113	75
1857	19	16	1899	137	90
1858	19	16	1900	137	92
1859	19	14	1901	137	94
1860	19	15	1902	152	95
1861	19	18	1903	152	102
1862	19	19	1904	152	105
1863	19	20	1905	154	105
1864	22	27	1906	155	111
1865	22	25	1907	165	117
1866	22	24	1908	200	128
1867	39	27	1909	200	135
1868	39	37	1910	200	138
1869	39	38	1911	200	136
1870	39	36	1912	205	145
1871	39	37	1913	217	156
1872	47	47	1914	222	163
1873	47	44	1915	222	168
1874	50	47	1916	222	166

APPENDIX 13 (Continued)

Year	Cadre	In Post	Year	Cadre	In Post
1917	222	163	1947	413	324
1918	222	164	1948	378	312
1919	222	151	1949	379	308
1920	237	163	1950	380	318
1921*	211	159	1951	379	336
1922	205	165	1952	380	351
1923	205	167	1953	380	346
1924	205	164	1954	381	346
1925	205	167	1955	381	362
1926	205	168	1956	439	375
1927	206	166	1957	442	385
1928	207	170	1958	443	375
1929	206	173	1959	450	387
1930	229	207	1960	448	388
1931	245	224	1961	480	406
1932	246	219	1962	477	429
1933	245	210	1963	482	437
1934	245	225	1964	517	474
1935	254	234	1965	517	496
1936	263	249	1966	533	492
1937	281	281	1967	596	519
1938	307	294	1968	661	576
1939	320	326	1969	684	618
1940	343	343	1970	735	700
1941	366	373	1971	714	703
1942	389	389	1972	727	682
1943	404	372	1973	752	681
1944	403	357	1974	827	737
1945	403	331	1975	900	807
1946	396	323	1976		830

Data for this table has been gleaned from inspectors' reports and annual reports supplemented by parliamentary answers, and by an analysis of monthly circulars showing appointments and resignations.

* Ireland independent.

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Statutes - Appendix 3

Regulations at 1976 - Appendix 4

Reports of Inspectors of Factories - Appendix 5

Government Reports - Appendix 6

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