

A STUDY OF THE RELATIONSHIP BETWEEN EMPLOYEE
PARTICIPATION AND SAFETY PERFORMANCE
WITHIN AN INDUSTRIAL ORGANISATION

SUBMITTED TOWARDS THE AWARD OF
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ABSTRACT

This thesis attempts to show whether the safety performance of one industrial organisation over a period of four years was improved as a result of the introduction of new safety legislation, and in particular through the influence and activities of safety representatives. Furthermore, it attempts to describe, (by means of managerial and organisational arrangements within the plant which are sympathetic to increased worker involvement in health and safety matters) how safety representatives were able to effect change.

A case study approach is adopted and by means of multiple triangulation of methods and data the subject is examined in a number of different ways in an effort to achieve greater reliability.

It concludes that there was clear evidence during the period 1976 to 1979 to suggest that the organisation treated health and safety matters with more concern and attention than prior to 1976 and that the safety representatives were an important influence in bringing this about. Furthermore, it is suggested that the management style was shown to be sympathetic to worker involvement in health and safety but there was conflicting evidence regarding whether the safety performance of the plant improved over the period.

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CONTENTS

	PAGE NUMBER
Title page	1
Abstract	2
List of contents	3
List of figures	5
List of tables	6
List of appendices	8
Acknowledgements	11
Introduction	12
Developing a hypothesis	13
Methodology	18
Chapter 1 - Legislation on health and safety	25
Chapter 2 - Functions of safety representatives	33
Chapter 3 - The organisation	38
Chapter 4 - Patterns of management and organisational style	48
Chapter 5 - Use of accident data and statistics	88
Chapter 6 - Employee attitudes to health and safety	120
Chapter 7 - Expenditure on health and safety	167
Chapter 8 - Specific case studies - THE CHANGING SITUATION	177
Chapter 9 - Safety and the supervisor	198
Chapter 10 - Health and safety committee activity	223
Chapter 11 - The changing role of the safety officer	242

Chapter 12 - The influence of the safety representatives	267
Conclusions	274
Appendices	282
References	337

LIST OF FIGURES

FIGURE	TITLE	PAGE NUMBER
1	Control chart for accident frequency	106
2	Summary of factors affecting health and safety at Metro-Cammell (1970-1979)	197
3	Relationship between action requests from safety representatives and safety committee action requests (1976-1979 inc)	237
4	Functions of the Fire/Safety Officer and changes in involvement during the period 1976-1979 inc	259
5	Functions of the Fire/Safety Officer and involvement with safety representatives/ shop stewards during the period 1976-1979 inc	261

LIST OF TABLES

TABLE	TITLE	PAGE NUMBER
1	Relationship between length of service and injuries (October 1979)	112
2	Variation in all injury frequency rate 1975-1979 inclusive	115
3	Relationship between number of respondents and length of service (February 1977 and October 1978)	136
4	Representativeness of sample with respect to age (July 1979)	145
5	Representativeness of sample with respect to length of service (July 1979)	145
6	Relationship between length of service and response to statement (m) (July 1979)	155
7	Contribution to health and safety by various groups of employees	156
8	Contribution to health and safety by various groups of employees - (comparison between two ranking methods)	157

9	Applications for special funds (1976-1979 inc)	173
10	Analysis of minutes of Health and Safety Committee meetings (1976-1979 inc) items 1-9	232
11	Analysis of minutes of Health and Safety Committee meetings (1976-1979 inc) items a-d	234

LIST OF APPENDICES

ADDENDUM

- APPENDIX 9a - Calculation of Control Chart
Control Limits 1975 301a
- APPENDIX 9b - Control Chart for Accident
Frequency 1976-1979 inc 301b

LIST OF APPENDICES

	PAGE NUMBER
APPENDIX 1 - Health and Safety - General Policy Statement	282
APPENDIX 2 - Health and Safety Policy - Arrange- ments and Organisation	283
APPENDIX 3 - Safety Procedure - Accident Reporting	293
APPENDIX 4 - Safety Procedure - Maintenance of Accident records	295
APPENDIX 5 - Record of Accidents	297
APPENDIX 6 - Injuries - Severity Groups	298
APPENDIX 7 - Safety Indices - Comparison (1975-1979)	299
APPENDIX 8 - All accident frequency rate	300
APPENDIX 9 - Calculation of all accident frequency rate control limits	301
APPENDIX 10 - Calculation of Safe - T - Score (1976-1979 inc)	302
APPENDIX 11 - Relationship between length of service and injuries - October 1979	303

APPENDIX 12 - Employee attitude questionnaire response (1977)	304
APPENDIX 13 - Employee attitude questionnaire response (1978)	308
APPENDIX 14 - Employee attitude questionnaire response (1979)	312
APPENDIX 15 - Employee attitude questionnaire comparison between years (1977/ 1978/1979)	314
APPENDIX 16 - Health and Safety expenditure codes	316
APPENDIX 17 - Application for special funds form	317
APPENDIX 18 - Revised capital and special revenue application form	318
APPENDIX 19 - Further revision of application for special funds form	319
APPENDIX 20 - Health and Safety expenditures (1979)	320
APPENDIX 21 - Safety Procedure - Electrical testing (1972)	323

APPENDIX 22 - Works Notice - Electrical testing (1972)	325
APPENDIX 23 - Safety Procedure - Electrical testing (1977)	326
APPENDIX 24 - Safety Procedure - Electrical testing (Draft 1979)	327
APPENDIX 25 - Safety Procedure - Entry to commissioning and test area (1980)	328
APPENDIX 26 - Safety Procedure - High Voltage and Pressure Testing (1980)	330
APPENDIX 27 - Accident report form	332
APPENDIX 28 - Supervisors/Managers weekly safety log sheet	333
APPENDIX 29 - Supervisors/Managers weekly safety log - Guidance for completion	334
APPENDIX 30 - Safety Representatives Questionnaire	335
APPENDIX 31 - Safety Representatives Questionnaire - response	336

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INTRODUCTION

This thesis is about the participation of workers in health and safety matters and it came to be written as a result of comments made by the Committee investigating the safety and health of persons at work under the Chairmanship of Lord Robens.

The Committee came to the conclusion that there was no credible way of measuring the value of consultative and participatory arrangements in terms of their direct effect upon day to day performance. As a matter of principle however, they thought that work people should be more directly involved than had previously been the case in making arrangements for their own health and safety.

The research reported in this thesis is an attempt to quantify the effect that the introduction of safety representatives had upon the safety performance of one industrial organisation and try to suggest reasons why changes occurred by studying the organisational style of the company.

It should be noted that throughout the period of the research, the researcher was employed by Metro-Cammell in the capacity of Personnel Manager, responsible for health and safety matters.

DEVELOPING A HYPOTHESIS

The idea for starting this particular piece of research originated from a comment in the Roben's Report (1972). The initial challenge was to attempt to prove Robens incorrect by measuring the value of consultative and participatory arrangements in terms of their direct effect upon safety performance. However, it soon became apparent that to accomplish this, if it were possible, would not in itself be of much value except to achieve the satisfaction of accomplishing something Robens thought impossible. What was needed was to show not only the effect of worker participation on safety performance but also to attempt to explain by what mechanisms the change had occurred and what factors had allowed change to take place.

In attempting to clarify the idea, a quotation from Gage (1963) seemed appropriate. '.....THE PROCESS OF GETTING AND DEVELOPING IDEAS IS UNDOUBTEDLY A CONFUSED MIXTURE OF OBSERVATION, THINKING, ASKING WHY, CHERISHING LITTLE UNFORMED NOTIONS ETC.....BUT IT SHOULD ALSO BE EMPHASISED THAT THE NOTION CANNOT BE ALLOWED TO REMAIN FOREVER VAGUE: IDEAS MUST EVENTUALLY ACHIEVE CLARITY AND TESTABILITY IF THEY ARE TO RECEIVE SERIOUS ATTENTION FROM OTHER RESEARCHERS'.

Ideas can be scientifically examined only when they are transformed into testable hypothesis and therefore to consider the matter further it was necessary to devise a hypothesis which could be used as a well defined basis for the research.

Another idea then took shape, namely to examine in detail the environment into which safety representatives were introduced and to investigate whether this had any effect on them achieving an improvement in company safety performance.

Prior to the introduction of the Safety Committee and Safety Representative Regulations 1977, it was thought by some managers within my personal experience that any duties or functions given to safety representatives would cause problems by increasing trade union pressure to bring about change in an unreasonable and irresponsible manner. Other managers thought their present agreements and arrangements would cater for the new legislation and their industrial relations climate would not suffer.

It seemed reasonable therefore to assume that the organisational and management style, coupled with the existing industrial relations climate would have a bearing on how successful or otherwise would be the introduction of safety representatives and ultimately the effect on safety performance.

After consideration of these various factors it seemed that a hypothesis could be developed that would form the basis of a useful piece of research.

A passage from Van Dalen (1962) provided a valuable insight into how I should proceed:

'A SCIENTIST CANNOT BE AN ISOLATED REBEL WHO RELIES ON PERSONAL OBSERVATION ALONE TO CREATE FRUITFUL HYPOTHESES. HIS WORK WILL BE HOPELESSLY HAMPERED IF HE IS NOT THOROUGHLY FAMILIAR WITH ESTABLISHED FACTS, EXISTING THEORIES AND PREVIOUS RESEARCH RELATING TO HIS PROBLEM'.

Travers (1969) suggested that:

i Hypotheses should be clearly stated and in correct terminology

General terms should be avoided.

ii Hypotheses should be testable

Instruments should exist or be developed which will provide valid measures of the variables involved.

iii Hypotheses should state relationships between variables

A satisfactory hypothesis is one in which the expected relationship between the variables is made explicit.

Hypotheses should be limited in scope

Hypotheses which are specific and relatively simple to test are preferable.

v Hypotheses should not be inconsistent with most known facts

All hypotheses should be grounded in knowledge gained from a review of the literature.

Denzin (1970) defines a hypothesis (or proposition) as a statement of relationship between two or more concepts and states that propositions give theory its quality of explanation. 'THEY REPRESENT AN ADVANCE BEYOND CONCEPT DEVELOPMENT AND PERMIT THE CONSTRUCTION OF DEDUCTIVE SCHEMES'. He believes that analysts should strive for multivariate predictions or ones which consider three or more concepts in a sequential pattern because variables other than those explicitly contained in a causal system may be creating the differences observed. Multivariate predictions permit the consideration of additional causal factors.

From my own personal observations in early 1976 it did appear that the introduction of the Health and Safety at Work etc, Act 1974, was resulting in change within the company which was leading to more awareness of health and safety matters by many more employees than previously. Even at that early stage, workers were having more say in decisions which affected them, (in health and safety terms).

The inference drawn from these observations taken together with some basic knowledge of management - employee relations literature led me therefore to develop the following hypothesis of a multivariate nature which seems to satisfy the necessary criteria:

'THE PATTERN OF MANAGEMENT AND ORGANISATIONAL ARRANGEMENTS WITHIN METRO-CAMMELL IS SYMPATHETIC TO THE INVOLVEMENT OF WORKERS IN HEALTH AND SAFETY MATTERS.

BECAUSE OF THIS AND AS A RESULT OF THE INTRODUCTION OF NEW SAFETY LEGISLATION, THE CREATION OF SAFETY REPRESENTATIVES HAS LED TO A POSITIVE IMPROVEMENT IN SAFETY PERFORMANCE.

THIS IMPROVEMENT SINCE 1976 IS SHOWN BY MORE EFFECTIVE SAFETY MEASURES AND BY EMPLOYEES AT ALL LEVELS TREATING HEALTH AND SAFETY MATTERS WITH MORE CONCERN AND ATTENTION'.

METHODOLOGY

Denzin (1970) described sociological methodology as representing the principle ways in which the sociologist acts on his environment; his methods, be they experiments, surveys, or life histories, lead to different features of this reality, and it is through his methods that he makes his research public and reproducible by others.

In setting out to devise the methodology for the research a passage from Webb et al (1966) had an important influence. 'TODAY THE DOMINANT MASS OF SOCIAL SCIENCE RESEARCH IS BASED UPON INTERVIEWS AND QUESTIONNAIRES. WE LAMENT THIS OVERDEPENDENCE UPON A SINGLE, FALLIBLE METHOD. INTERVIEWS AND QUESTIONNAIRES INTRUDE AS A FOREIGN ELEMENT INTO THE SOCIAL SETTING THEY WOULD DESCRIBE, THEY CREATE AS WELL AS MEASURE ATTITUDES, THEY ELICIT TYPICAL ROLES AND RESPONSES, THEY ARE LIMITED TO THOSE WHO ARE ACCESSIBLE AND WILL CO-OPERATE, AND THE RESPONSES OBTAINED ARE PRODUCED IN PART BY DIMENSIONS OF INDIVIDUAL DIFFERENCES IRRELEVANT TO THE TOPIC AT HAND.

BUT THE PRINCIPLE OBJECTION IS THAT THEY ARE USED ALONE!'

Two points came out of this passage. One the criticism of using only one type of method in the research, namely the interview or questionnaire, and secondly the effect or influence of the interviewer.

There are a number of advocates of using several methods to elicit data rather than rely on the one single method. One

of these is Denzin (1970) who defined 'triangulation' as the use of multiple methods in the study of the same object. Eldridge (1973) also discussed this technique. 'IT IS ADVOCATED BY THOSE WHO BELIEVE THAT SOCIAL SCIENTISTS WHO ADHERE TO ONE METHOD OF RESEARCH AND PARADE ITS VIRTUES AGAINST ALL THE DEFECTS OF OTHER METHODS, MISS THE CHANCE OF GAINING, AT BEST, CONFIRMATORY EVIDENCE FROM THE APPLICATION OF DIFFERENT METHODS'.

Denzin (1970) not only argues for methodological triangulation, but also data, investigator and theoretical triangulation, in short 'multiple triangulation' which constitutes the complete process and provides the opportunity of covering the investigation more fully with the aim of achieving greater reliability.

Eldridge in describing data triangulation used an example Gouldner's "Patterns of Industrial Bureaucracy" which recognised that there were various levels of analyses - the union as a whole, the locals, the shop floor and the individuals engaged in union activity. This involved the collection of a range of data including union laws, policies, and convention reports, histories of locals, the voting records of shops and locals, and opinions from the men, and their union leaders. The methods used included interviewing, historical reconstruction, qualitative and quantitative analyses of documents to ascertain, for example, voting patterns and hopefully to infer the significance of the issues at stake.

It became quite clear, as a result of considering the triangulation aspect, that various techniques should be used and in the case of this particular piece of research within the general framework of the case study approach.

Yin (1981) attempts to show that case studies can be conducted systematically and have some importance as a research tool. In describing a case study, he makes the following points:

- i The case study does not imply the use of a particular type of evidence, it can be done by using either qualitative or quantitative evidence. The evidence may come from fieldwork, archival records, verbal reports, observations, or any combination of these.
- ii The case study does not imply the use of a particular data collection method.
- iii The case study represents a research strategy, to be likened to an experiment.

One criticism of the typical case study report is that it is a 'LENGTHY NARRATIVE THAT FOLLOWS NO PREDICTABLE STRUCTURE AND IS HARD TO WRITE AND HARD TO READ' (Yin 1981).

This pitfall may be avoided if the study is built on a clear conceptual framework.

Taking all the previous points into consideration it appeared that the case study approach and the triangulation technique could be applied to the research by identifying a number of areas for study and using various approaches to elicit the data needed to test the hypotheses already formulated.

A number of areas offered themselves suitable for study, namely:

i Accident records and statistics

Analysis of historical data in an attempt to determine change in performance.

ii Employee attitudes

Design and use of a series of questionnaires intended to determine the attitudes of employees towards various aspects of health and safety within the plant.

iii Expenditure on health and safety

Devising and implementing expenditure measurement systems, monitoring their operation and analysing resulting expenditure.

iv Activities of supervision

Devising and putting into operation supervisory log books with a view to determining the amount of time supervision spend on health and safety matters. Also to examine the attitudes of employees to the role of supervision within health and safety.

v Activities of the Health and Safety Committee

Determining the significant events recorded historically in the minutes of the committee and tabulating these events in an attempt to analyse causal factors and distinguish patterns of action.

vi Activities of the Fire and Safety Officer

By using the interview technique attempt to analyse how the role of the Fire and Safety Officer has changed during the period of study and for what reasons.

vii Activities and attitudes of safety representatives

By means of a questionnaire and using the interview technique examine the activities and attitudes of safety representatives in order to determine their functions, their effectiveness and how their role has changed over the years.

viii Specific case studies

Selection of a number of specific examples of health and safety activity described in narrative form in an attempt to draw certain conclusions that could be used to test the hypotheses.

Having dealt with the question of using a wide variety of measures and techniques in the research (triangulation) and having decided to adopt the case study approach which is considered by Yin to be suitable for research of this type, it was then necessary to consider the possible effect and influences of the interviewer/researcher.

Denzin (1970) discussed unobtrusive measures of observation and described these as being any method of observation that directly removes the observer from the set of interactions or events being studied. Denzin went on to say that 'THE PRESENCE OF AN OBSERVER IS A POTENTIALLY REACTIVE FACTOR, SINCE HE MAY PRODUCE CHANGES IN BEHAVIOUR THAT DIMINISH THE VALIDITY OF COMPARISON'. He argued that the mere presence of the observer meant that movements are made and orientations are developed toward him which would not otherwise have occurred.

In the case of this particular piece of research, there is the added complication created by the dual role of the researcher/manager.

It is quite clearly possible for the researcher to seek evidence that as manager he could manipulate to suit himself. Furthermore, he might influence behavioural patterns in employees/respondents because of his standing in the organisation. Where inobtrusive observation methods are used there is less likelihood of this influence being strong but where personal contact is made by way of interviews or through questionnaires this influence could be important.

It is necessary therefore to accept that the researcher/manager factor is likely to influence the study in some way and to allow for this and attempt to control it where possible.

There are a number of other factors which could influence the research or introduce bias or inaccuracy into the findings, these being:

- a The research is based at the micro-level within one organisation. Therefore, traditional methods of working, restrictive custom and practice, procedural matters, long standing arrangements and agreements and many other similar aspects of Company operation are likely to affect the final results and should be taken into consideration in the final analysis.

- b The introduction and implementation of new health and safety legislation into the organisation would of necessity be tailored to the existing arrangements accepted by both management and unions within the plant. This means that both formal and informal organisation structures would absorb changes in their unique style and not necessarily in a manner dictated by factors or agencies external to the company.

- c The introduction of any new arrangements would tend to be gradual and for this reason the effects of change will be difficult to assess. The organisation would also change in a variety of other ways during the period of study.

CHAPTER 1

Legislation on Health and Safety

i Worker participation in health and safety

The first attempt to include worker's involvement in health and safety legislation came with the introduction of the Coal Mines Regulation Act 1872, which provided for workers to appoint two of their number to act as worker safety inspectors and inspect the mines once a month. This provision was strengthened in 1911 by the Coal Mines Act when ex-miners became eligible for appointment, thus opening the possibility of full time trade union workmens inspectors. By 1938 both sides of the industry appeared to value the contribution of the inspectors, the Royal Commission on Safety in Coal Mines recommending compulsory quarterly inspections, paid for jointly by employers and trade unions. According to Howells (1974) by 1971 99% of all mines under the Mines and Quarries Act were inspected by workmens inspectors and approximately 90% by the Safety Board Inspectors.

Atherley et al (1975) contrast legislation on worker involvement in health and safety in mining with that in factories. The first major impetus for workers' involvement in health and safety in factories coming in 1918 from the Health of Munition Workers Committee which drew attention to the need for workers to have an effective voice in the conditions under which they work. However, the report avoided any suggestion that workers should participate in the taking of decisions. Atherley et al suggest that the idea was getting close to participa-

tion, but in 1918 it was ahead of its time, certainly for most of British industry.

By the late 1960's there was much debate and conjecture amongst politicians, trade unionists and employer representative organisations about participation, so it was expected that evidence presented to the Robens Committee would reflect this growing interest in the subject.

The Department of Employment gave evidence stating that
'.... THE PARTICIPATION OF WORKPEOPLE SHOULD BE SECURED IN THE MAINTENANCE OF THE ENVIRONMENT AND CONFORMITY WITH PROCEDURES DESIGNED TO PRESERVE SAFETY AND HEALTH..
...'

'THE IMPLEMENTATION OF SAFE SYSTEMS OF WORK ENTAILS CONSULTATION WITH WORKPEOPLE AND SHOULD PROVIDE BOTH MANAGEMENT AND TRADE UNIONS WITH AN OPPORTUNITY TO INFLUENCE WORKER ATTITUDES AND TO ENABLE THE WORKERS TO PARTICIPATE IN DETERMINING SAFE AND HEALTHY WORKING PRACTICES'.

In its evidence the Trade Union Congress also included this theme of the involvement of workpeople. 'ACTION BY MANAGEMENT ALONE IS NOT ENOUGH. EFFECTIVE SAFETY ORGANISATION MUST HAVE THE FULL SUPPORT AND CONFIDENCE OF WORKPEOPLE AND THEIR UNIONS AND THIS CAN ONLY BE OBTAINED BY JOINT CONSULTATION AT EVERY STAGE IN THE WORKING OUT AND IMPLEMENTATION OF SAFETY POLICY'.

The Royal Society for the Prevention of Accidents also favoured the co-operation and involvement of workpeople in general and in joint safety committess in particular, although they were in favour of this participation being on a voluntary rather than statutory basis.

The Confederation of British Industry too thought that involvement of workpeople should be encouraged, but on a voluntary basis. Thus they state: 'THE CBIs REASONS FOR OPPOSING THE INTRODUCTION OF COMPULSION INTO THIS FIELD ARE MANY. JOINT CONSULTATIVE MACHINERY OF WHATEVER FORM IT MAY TAKE DEPENDS UPON A POSITIVE DESIRE ON BOTH SIDES OF INDUSTRY TO WORK TOGETHER FOR COMMON OBJECTIVES. THE PRE-REQUISITE OF A WILLINGNESS TO CO-OPERATE IS SOMETHING WHICH BY ITS VERY NATURE CANNOT BE COMPELLED. MOREOVER, THE INTRODUCTION OF RESTRICTIVE LEGISLATION INTO A FIELD WHERE A GREAT DEAL HAD BEEN ACHIEVED BY VOLUNTARY PERSUASION MIGHT DESTROY MUCH THAT HAD BEEN ACHIEVED'.

In June 1972 the Robens Committee reported back to the Secretary of State for Employment and the findings were published. The report included proposals for far-reaching changes in Health, Safety and Welfare legislation. In assessing the weight of evidence presented to it, and in view of Lord Robens' previous personal experience as Chairman of the National Coal Board, it was no surprise to find that the Committee recommended that workpeople be included in devising and monitoring arrangements for their own health and safety.

'.....ACCIDENTS AT WORK HAPPEN EVERY DAY. IF STANDARDS OF SAFETY AND HEALTH AT WORK ARE TO BE IMPROVED, THIS MUST BE DONE THROUGH INFLUENCES WHICH OPERATE CONTINUOUSLY IN THE DAILY ROUTINE OF THE WORKPLACE. THE MOST IMPORTANT INFLUENCES ARE BETTER ATTITUDES AND BETTER ORGANISATION.

.....IF WORKPEOPLE ARE TO ACCEPT THEIR FULL SHARE OF RESPONSIBILITY (NOT LEGAL RESPONSIBILITIES) THEY MUST BE ABLE TO PARTICIPATE FULLY IN THE MAKING AND MONITORING OF ARRANGEMENTS FOR SAFETY AND HEALTH AT THEIR PLACE OF WORK. IF THE NEW INSPECTION APPROACHES ARE TO WORK, INCREASING RELIANCE WILL HAVE TO BE PLACED ON THE CONTRIBUTION THAT WORKPEOPLE THEMSELVES CAN MAKE TOWARDS SAFETY MONITORING..... AN EMPLOYEE'S SAFETY REPRESENTATIVE - WHETHER APPOINTED UNDER STATUTORY PROVISION OR BY VOLUNTARY AGREEMENT - SHOULD HAVE SPECIFIC DUTIES IN ADDITION TO HIS GENERAL FUNCTION OF STIMULATING MORE INTEREST IN ACCIDENT PREVENTION AMONGST HIS COLLEAGUES. HE SHOULD BE EMPOWERED TO CARRY OUT INSPECTIONS AND WE DO NOT BELIEVE THAT ANY RESPONSIBLE EMPLOYER WOULD IGNORE A GENUINE PROBLEM REVEALED BY SUCH INSPECTIONS... .. ALL THIS WOULD BE VALUABLE EVEN IN THE FACT OF ANY INITIAL DOUBTS ON THE PART OF MANAGEMENT'.

The Robens Committee concluded that the best way to meet the need for participation by employees would be to impose on employers a general duty to consult on somewhat similar lines to the consultative provisions exist-

ing in the Coal Industry Nationalising Act 1964, under which the NCB has a statutory obligation to enter into consultation with organisations appearing to them to represent substantial proportions of the persons in the employment of the Board. Somewhat similar provisions are also to be found in the Electricity Act 1947, the Gas Act 1948 and the Iron and Steel Acts 1949 and 1967.

The Robens Committee also promised other significant changes in Health and Safety legislation such as the bringing together of statutory enforcement of factories, mines, agriculture, alkali etc, under one unified authority. He argued that a new Act should contain the basic principles of safety responsibility and be supplemented by up to date codes of regulations and non-statutory or voluntary codes of practice. All employers and employees (with very few exceptions) should be covered by the Act.

The broad principles of the Committee's recommendations were accepted by Parliament and within two years, the Health and Safety at Work etc, Act 1974 received Royal Assent. Thus came onto the Statute Book, one of the most fundamental enactments in the health and safety field in nearly 200 years.

The legislation is an 'enabling' Act which means that it constitutes a broad generalised piece of legislation not going into a great deal of detail. Instead of making detailed provisions itself, it gives powers to the

Secretary of State for Employment, acting through the new Health and Safety Commission (HSC) to draw up detailed regulations and codes of practice on specific health and safety matters.

The main purpose of the Act is to provide for a single, comprehensive, integrated system of law dealing with both the health and safety of the workpeople and that of the public as affected by work activity.

There are six main areas covered by the Act:

- a The overhaul and modernisation of existing law.
- b Creation of a new Health and Safety Commission.
- c The re-organisation and unification of the various Government inspectorates into one body known as the Health and Safety Executive.
- d Provision for new powers and penalties for the enforcement of safety laws.
- e Establishment of new methods of occupational safety and health and new ways of operating future safety regulations.
- f The placing of new general duties on employers, ranging from providing and maintaining a safe place

ii Participative arrangements provided for by the Health and Safety at Work etc, Act 1974

The following provisions were included in the 1974 Act:

2.4 'REGULATIONS MADE BY THE SECRETARY OF STATE MAY PROVIDE FOR THE APPOINTMENT IN PRESCRIBED CASES BY RECOGNISED TRADE UNIONS, (WITHIN THE MEANING OF THE REGULATIONS) OF SAFETY REPRESENTATIVES AMONGST THE EMPLOYEES, AND THESE REPRESENTATIVES SHALL REPRESENT THE EMPLOYEES IN CONSULTATION WITH THE EMPLOYERS UNDER SUB-SECTION (6) BELOW AND SHALL HAVE OTHER FUNCTIONS AS MAY BE PRESCRIBED'.

2.6 'IT SHALL BE THE DUTY OF EVERY EMPLOYER TO CONSULT ANY SUCH REPRESENTATIVE WHICH WILL ENABLE HIM AND HIS EMPLOYEES TO CO-OPERATE EFFECTIVELY IN PRODUCING AND DEVELOPING MEASURES TO ENSURE THE HEALTH AND SAFETY AT WORK OF THE EMPLOYEES AND IN CHECKING THE EFFECTIVENESS OF SUCH MEASURES'.

2.7 'IN SUCH CASES AS MAY BE PRESCRIBED IT SHALL BE THE DUTY OF EVERY EMPLOYER, IF REQUESTED TO DO SO BY THE SAFETY REPRESENTATIVE MENTIONED IN SUB-SECTION (4) ABOVE, TO ESTABLISH, IN ACCORDANCE WITH REGULATIONS MADE BY THE SECRETARY OF STATE, A SAFETY COMMITTEE HAVING THE FUNCTION OF KEEPING UNDER REVIEW THE MEASURES TAKEN TO ENSURE THE HEALTH AND SAFETY AT WORK OF HIS EMPLOYEES AND SUCH OTHER FUNCTIONS AS MAY BE PRESCRIBED'.

Thus the scene was set for employee involvement in health and safety and in accordance with the provisions of the 1974 Act, the Secretary of State approved the Safety Representatives and Safety Committees Regulations 1977, which came into operation on 1 October 1978.

The Regulations were accompanied by a Code of Practice and Guidance Notes which offer practical guidance on the Regulations, these providing the legal framework within which employers and trades unions can make agreements for the functions of safety representatives and safety committees. The Code of Practice was approved by the HSC under the provisions of Section 16 of the 1974 Act so that where in any prosecution it is established that the relevant provisions of the Code have not been followed, it will be for the defendant to show that he has complied with the law in some other way.

In effect, employers and employees were given scope within the Regulations to set up their own agreed arrangement within this broad legal framework, there being the flexibility encouraged by Robens to provide for widely differing circumstances within industry and commerce. The arrangements thus did not require 'policing' by the Inspectorate but where dissatisfaction occurred, the existence of this basic legal obligation would provide a valuable lever for employee representation. In the last resort various penalties such as improvement or prohibition notices or prosecutions could always be used.

CHAPTER 2

Functions of Safety Representatives

The regulations specified the following functions for Safety Representatives (Regulation 4(i)):

'IN ADDITION TO HIS FUNCTION UNDER SECTION 2(4) OF THE 1974 ACT TO REPRESENT THE EMPLOYEES IN CONSULTATION WITH THE EMPLOYER UNDER SECTION 2(6) OF THE 1974 ACT, EACH SAFETY REPRESENTATIVE WILL HAVE THE FOLLOWING FUNCTIONS:

- a TO INVESTIGATE POTENTIAL HAZARDS AND DANGEROUS OCCURRENCES AT THE WORKPLACE (WHETHER OR NOT THEY ARE DRAWN TO HIS ATTENTION BY THE EMPLOYEES HE REPRESENTS) AND TO EXAMINE THE CAUSES OF ACCIDENTS AT THE WORKPLACE.
- b TO INVESTIGATE COMPLAINTS BY ANY EMPLOYEE HE REPRESENTS RELATING TO THAT EMPLOYEE'S HEALTH, SAFETY OR WELFARE AT WORK.
- c TO MAKE REPRESENTATIONS TO THE EMPLOYER ON MATTERS ARISING OUT OF (a) AND (b) ABOVE.
- d TO MAKE REPRESENTATIONS TO THE EMPLOYER ON GENERAL MATTERS AFFECTING THE HEALTH, SAFETY OR WELFARE AT WORK OF THE EMPLOYEES AT THE WORKPLACE.
- e TO CARRY OUT INSPECTIONS IN ACCORDANCE WITH REGULATIONS 5, 6 AND 7.

f TO REPRESENT THE EMPLOYEES HE WAS APPOINTED TO REPRESENT IN CONSULTATIONS AT THE WORKPLACE WITH INSPECTORS OF THE HSE AND OF ANY OTHER ENFORCING AUTHORITY.

g TO RECEIVE INFORMATION FROM INSPECTORS IN ACCORDANCE WITH SECTION 28(8) OF THE 1974 ACT and

h TO ATTEND MEETINGS OF SAFETY COMMITTEES WHERE HE ATTENDS IN HIS CAPACITY AS A SAFETY REPRESENTATIVE IN CONNECTION WITH ANY OF THE ABOVE FUNCTIONS.'

Thus, whilst the Robens Report proposed a '.....STATUTORY DUTY TO CONSULT WITH EMPLOYEES ON MEASURES FOR PROVIDING SAFETY AND HEALTH AT WORK, AND TO PROVIDE FOR PARTICIPATION OF EMPLOYEES IN THE DEVELOPMENT OF SUCH MEASURES' the deliberate omission to specify these measures within the regulations provided flexibility and allowed for the time honoured practice of voluntary arrangements to stand.

The 1974 Act and the subsequent 1977 Regulations described above, were rather more explicit than the Robens Report in setting down in some detail the obligations required of employers and the functions of the appointed safety representatives.

Robens' proposals have been criticised by Howells (1974), Levy (1974) and Atherley et al (1975) amongst others. Such criticism has been in respect of their disregard for 'collective bargaining' aspects of health and safety.

The Robens' Report asserts '.....THERE IS NO LEGITIMATE SCOPE FOR "BARGAINING" ON SAFETY AND HEALTH ISSUES.....'. However, this unitary philosophy, which pre-supposes the employer and employee unified for some common purpose, is rather at odds with the real life situation, where in general a more pluralistic approach is adopted by both parties, each recognising that groups have divergent interests which may be reconciled by collective bargaining.

In discussing the Robens' view, Lewis (1974) states that '... THIS APPROACH IS CONSISTENT WITH THE VIEW THAT CONSULTATION IS THE MEANS OF PROMOTING ACTION WHERE THERE ARE NO OBVIOUS CONFLICTS, BUT THE COMMITTEE SHOULD HAVE ACKNOWLEDGED THE FACT THAT GENUINE DISAGREEMENTS DO ARISE'. The likely causes of conflict are described thus by Flanders (1964), 'NEITHER SIDE CAN BE IMPARTIAL, FOR MANAGEMENT IS BIASED IN FAVOUR OF PRODUCTION AND THE WORKERS IN FAVOUR OF PROTECTION. MORE-OVER, AS COSTS AND EARNINGS MAY BE AFFECTED, ECONOMIC CONFLICT APPEARS IN ANOTHER GUISE TO INFLUENCE JUDGEMENT ON SEEMINGLY NON-ECONOMIC ISSUES'.

Howells (1974) contends that there are four ways in which some form of joint machinery can be set up to represent the workers' viewpoint in the solution of workplace safety problems.

i communication: to receive information from and communicate the workers' viewpoint to management on safety matters;

- ii consultation: to exchange views with management with a view to the settlement of "non-contentious" safety problems;
- iii negotiation: the right to discuss "contentious" safety points with a view to bargaining out the matters in dispute, and resolving matters by collective agreement or otherwise;
- iv participation: the right to challenge, delay or, on occasions veto management decisions on safety grounds.

Howells does not suggest that there are clear cut distinctions existing between these forms of participation.

It seems clear that if we accept that a pluralistic philosophy does exist across industry and that the days of the unitary approach are limited, then the concepts of negotiation and participation as described in iii) and iv) above must be accepted and that there is most decidedly a place for collective bargaining in the field of health and safety. Lewis (1974), goes further by stating 'COLLECTIVE BARGAINING NOT ONLY RAISES THE STATUS OF SAFETY, IT MAY ALSO CONSTITUTE A MORE EFFECTIVE FORM OF PARTICIPATION THAN ANY OF THE SCHEMES FORMALLY GIVEN THAT NAME'.

The 1974 Act and subsequent Regulations dealing with employee participation accept in some measure the existence and importance of the existing Industrial Relations scene and allow

quite good scope for management and employees to formulate joint agreement as to how the legislation will be implemented at their particular workplace.

However, it should not be thought that merely by involving employees in decisions regarding health and safety, this will be the panacea to solve all the problems that exist. Without the backing of effective legislation and the support of industrial safety specialists, it will not be possible to make progress in reducing accidents and removing hazards from the workplace, thus the essential objectives of the committee of Inquiry will not have been fulfilled.

CHAPTER 3

THE ORGANISATION

i History

The history of Metro-Cammell goes back 150 years to the time that a Joseph Wright ran mail from London to Birmingham. He also built horse drawn mail coaches and when the railways grew into prominence it became a natural progression for him to move into building railway coaches.

Over the years the original company grew and acquired other rolling stock interests from time to time. Then, as the railway industry in this country declined, the company continued to acquire other more troubled concerns, and, itself became part of much larger engineering groups, the main ones being Vickers and Cammell Laird.

From a period when there were literally hundreds of separate private railway rolling stock manufacturers, the industry has declined to such an extent that Metro-Cammell is now the only private concern left in the United Kingdom.

The company has therefore had a very chequered history with its periods of great success and growth interspersed with years of decline and lack of sufficient work.

Over the last 20 years the company has contracted from having four large sites in the Birmingham area, employing about 10,000 employees, to a position where it occupies a single site of 50 acres at Washwood Heath, Birmingham, with its sister company, (which designs and manufactures single and double deck buses), and employs 1500 people.

ii Products and markets

In the past the company has designed and built wagons, tankers, carriages and locomotives/railcars for both this country and for export. However, as the developing countries began to industrialise they started to take over the world market for wagons, which are relatively unsophisticated and easy to build.

This effect on world markets caused the company to think carefully about its future to the extent that a decision was made to specialise in the design and manufacture of relatively sophisticated rapid transit rolling stock, it already having a wealth of experience through supplying the London Transport Executive with cars for its underground system for many years.

As this change in the supply of the more simple rolling stock was taking place, British Rail during the

'Beeching era' were reducing their service to industry and the public in general and cutting down on the purchase of rolling stock by making arrangements to manufacture all their own requirements within their own works. This had serious repercussions within Metro-Cammell because the Company had supplied many thousands of railcars and carriages to British Rail over the years.

It became imperative for the company to have success with its new policy of building stock of the rapid transit type and an energetic engineering and sales initiative in the early 1970's led to an upturn in the company's future to the extent that during the latter period of that decade major contracts were obtained and cars supplied to Glasgow Passenger Transport Executive, the Tyne and Wear Authority, and Hong Kong Mass Transit Authority as well as to London Transport.

This increase in workload is reflected in the number of persons employed, these being 750 in early 1976 and 1550 in late 1979, an increase of 100%.

Metro-Cammell is primarily engaged in medium to heavy engineering using a labour intensive production system. Most contracts are designed and constructed to the individual customers requirements and a large element of skill is inherent in the work carried out, vehicles being hand built on a unit or a batch production basis,

with prototypes usually preceding the production order. This is described in more detail in the chapter dealing with patterns of management and organisational style.

The principal operations undertaken could be said to be of the fabrication type ie, fabrication and welding account for something like 40% of the total man hours worked by manual workers. Assembly/vehicle finishing and general machining account for approximately 40%, the remaining 20% being indirect work undertaken by Inspection, Maintenance and Material Handling/Stores departments.

Many of the traditional railway building skills live on and a number of trades are known by titles not commonly used elsewhere, for example Template Makers and Body-makers/Finishers. Furthermore, hot riveting work is undertaken and teams of three engaged in this work are known as the Riveter, Holder Up and Hotter, expressions no longer in common usage.

iii Trade unions

The hourly paid labour force, numbering about 1250 in late 1979, are all members of unions, the principal ones in order of size and membership being:

Approx Membership

Transport & General Workers Union (T&GWU)	900
Amalgamated Union of Engineering Workers (AUEW)	250
National Union of Sheetmetal Workers, Coppersmiths, Heating & Domestic Engineers (NUSMW, CH&DE)	85
Electronic, Electrical Technicians & Plumbers Union EETPU)	10
Union of Construction and Allied Trades (UCAT)	5

A total of 28 shop stewards represent this membership, more than half of them being in the T&GWU which has the majority membership in the company. In some departments there are members of other unions who are represented by a shop steward of one of the principal unions, these being the five with negotiating rights in the company. These employees, who are classed as "anomalies", are long serving personnel who were not required to change unions when negotiating rights were established. If they are not already a member of one of the principal unions, new employees are expected to join the union relevant to the department in which they are to work and are encouraged by management, at interview, to do this.

Staff employees numbered approximately 280 at the end of 1979 but not all these were members of unions. Senior staff are not unionised but other staff employees are members of the following unions:

Association of Scientific, Technical and Managerial Staffs (ASTMS)

All supervisors are members and the union negotiates on behalf of the supervisors as a collective body.

Amalgamated Union of Engineering Workers - Technical, Administrative and Supervisory Section (AUEW-TASS)

All technical staff including technical supervisors, but not managers, are members.

Association of Professional, Executive Clerical and Computer Staff (APEX)

90% of all clerical workers, who come within the definition as laid down in the company-APEX agreement, are members (about 85% of all clerical staff).

All unionised departments negotiate annual agreements relating to pay and other terms and conditions of employment and the Personnel Department act on behalf of the management of the company in these negotiations.

iv Health and safety policy (1975-1980)

The General Policy Statement (Appendix 1) was formulated and published in October 1975. It refers to four main aspects:

- a provision of safe and healthy working conditions
- b conformity with legislation and provision of instruction and training
- c duties of employees
- d consultation and co-operation with employees

The company health and safety policy consists of this general policy statement together with the arrangements and organisation for carrying out the policy. These are illustrated in Appendix 2.

All managers, supervisors and safety representatives, have copies of these documents contained in a loose leaf binder kept for the purpose, and additions, subtractions and amendments are made from time to time.

The company also has agreed procedures and methods of working relating to the implementation of the Safety Representatives and Safety Committee Regulations 1977. A list of these procedures is as follows:

- 1 procedure regarding the appointment of safety representatives,
- 2 procedure for dealing with safety matters;
 - a normal procedure
 - b extraordinary procedure

- 3 procedure for investigating and reporting accidents,
- 4 procedure for inspecting the workplace,
 - a regular inspections
 - b change or incident inspections
- 5 procedure for requesting external assistance,
- 6 procedure regarding the involvement of the factory inspector,
- 7 procedure for requesting information,
- 8 procedure for the notification of unsafe conditions or working practices,
- 9 constitution and terms of reference of the safety committee.

v Health and Safety Committee

The company Health and Safety Committee, which meets regularly on the first Monday of each month, is chaired by the Production Director and comprises:

Production Director - Chairman
Personnel Manager - Secretary
Fire and Safety Officer
Maintenance Manager

one departmental manager

one departmental supervisor

one staff safety representative

7 works safety representatives (It was agreed that in order to keep the Committee to a reasonable size this would be the maximum number of works safety representatives on the Committee).

The general terms of reference of the Committee are to:

- a investigate, develop and assist in the implementation of and compliance with measures to ensure the health and safety at work of employees,
- b act as an advisory body and forward recommendations to management to prevent accidents and industrial diseases,

The minutes of all meetings are posted on special safety notice boards and individual copies are circulated to all managers, supervisors, safety representatives and shop stewards.

vi Safety representatives

It has been agreed that 9 safety representatives are elected by the unions to represent the hourly paid employees, and one to represent the staff. This means that on average works representation is one in one hundred and forty whilst staff representation is one in one hundred and eighty. Quite clearly there are more hazards in shop floor areas and so the representation is correspondingly greater.

All works safety representatives are also shop stewards but not all shop stewards are safety representatives. The staff representative is not a union representative.

The works safety representatives are elected to represent particular trade or occupation groups but they are also elected with geographical areas quite clearly in mind.

Safety representatives are given the facility to attend health and safety courses which are approved by the Trades Union Congress (TUC) and held over a period of 10 weeks, one day per week, at local technical colleges. Furthermore, a number of in-plant discussions, chaired by the Personnel Manager, are held at which specific information is communicated and an interchange of ideas and views takes place.

Various kinds of literature, ranging from health and safety journals to bulletins published by the Health and Safety Executive (HSE) are obtained and circulated. The works safety representatives use the shop stewards office in which to file and catalogue relevant information.

CHAPTER 4

Patterns of management and organisational style

To identify the management style at Metro-Cammell, it is necessary to look at published theories on management-employee relations. However, this thesis is not intended to offer a comprehensive range of theories, or even to discuss their merits or failings. The theories are considered in order to identify a possible management style adopted by the Company and the effect this might have on the possible outcome of introducing a new factor ie, safety representatives and safety legislation into the prevailing organisation structure.

Effect of technology on production

Woodward (1965) writes about the empirical studies of a group of researchers in British industry over a 10 year period. In attempting to derive an organisation theory they initially had great difficulty in establishing any kind of relationship between organisational and other characteristics.

However, they noted that Dubin (1959) went so far as to contend that technology was the most important single determinant of working behaviour, his definition of technology being:

- i tools, instruments, machines and technical formulae basic to the performance of the work
- ii body of ideas which express the goals of the work, its functional importance and the rationale of the methods of employees.

Woodward had already proposed the hypothesis that meaningful explanations of behaviour can be derived from an analysis of the work situation, and after conducting the studies she was able to state that technology could be defined as one of the primary variables on which behaviour depended.

The studies listed production systems in order of their chronological development, production of unit articles to customers' individual requirements being the oldest and simplest form of manufacture. As one moved along the chronological scale it became increasingly possible to exercise control over manufacturing operations. Targets could be set and reached more effectively in mass production firms and the factors likely to limit performance could be allowed for, whilst at the same time it was found that the higher the technological complexity the greater the degree of prediction of output.

The production systems identified were:

- 1 Production of units to customers' requirements)
- 2 Production of prototypes)Jobbing
- 3 Fabrication of large equipment in stages)
- 4 Production of small batches to customers' orders

- 5 Production of large batches
- 6 Production of large batches on assembly lines
- 7 Mass production
- 8 Intermittent production of chemicals in multi-purpose plant
- 9 Continuous flow production of liquids, gases etc
- 10 Production of standardised components in large batches
- 11 Process production

Metro-Cammell would fit somewhere into the first four categories, all of them having some relevance to the type of work undertaken.

Metro-Cammell build to a customer's requirements, no two contracts being identical. In rapid transit manufacture, there is no such thing as standardisation of parts or rationalisation between contracts.

Orders could be as small as six units - examples of this being electric shunting locomotives or battery locomotives for the London underground system.

As indicated earlier, prototypes are usually built at the commencement of a contract and then strain gauged to determine resistance to stresses in vital structures. On many occasions these prototypes are constructed before the final design drawings are completed, this being a good example of 'one off' construction.

A small group of the ultimate manufacturing team will be engaged in building the prototypes and they weld together into a cohesive work group, getting tremendous job satisfaction from the task in hand. For example, some of the more experienced shop floor workers together with a group leader and under the supervision of a foreman would work together using their combined skill and knowledge to build the prototype, feeding back related information to design and to the template making department. This team would experience all the disappointment, frustration and finally, satisfaction, of completing the first vehicle.

Woodward found that in unit production the close integration of functions, the frequent personal contacts, lack of pressure associated with the dominance of the development function contributed to the development of good inter departmental relationships.

With this type of production system, the research workers found that there was a high degree of involvement in the affairs of the Company and a responsible attitude to work at all levels of the hierarchy, with the organisation being more flexible and duties and responsibilities being less clearly defined than in mass production.

Frames of reference

Fox (1974) discusses the frames of reference through which men perceive and define social phenomena, and noted that their perceptions and definitions determine their behaviour.

He describes three frames of reference, the 'Unitary', the 'Pluralistic' and the 'Radical'.

The unitary frame of reference places emphasis on the common objectives and values said to unite all parties. Arising from this firm foundation is said to be the need for a unified structure of authority, leadership and loyalty with full managerial prerogative legitimised by all members of the organisation. Parties should stop determining their situation in conflict terms of divergent goals, repose trust in their superiors, accept their leadership and legitimise their discretionary role.

On the other hand, the pluralistic approach legitimises inter-group conflict in industry and institutionalises it through collective bargaining. It acknowledges that there are basic differences between parties to industrial relations and that conflict is not only possible but "normal" or to be expected.

The radical approach maintains that not only do parties to industrial relations have different interests, but they have unequal power and means to achieve their objectives. Conflict is therefore inevitable.

Charles (1973) traced the existence of a positive philosophy of industrial relations between the years 1911 and 1939.

'THE UNIONS AND THE EMPLOYERS AGREE THAT THEY CAN CO-EXIST WITHIN THE SYSTEM AND ON THE BASIS OF STRONG ORGANISATION NEGOTIATE THEIR RESPECTIVE NEEDS CO-OPERATIVELY OUT OF SELF INTEREST, ACCEPTING THE MORAL OBLIGATIONS TO OBSERVE AGREEMENTS.

THE NORMS WHICH RESULT MEET THE NEEDS OF EFFICIENCY BY LEADING ON TO PRODUCTIVITY BARGAINING.....AND SO ARE BENEFICIAL TO THE EMPLOYER AND THE NATION AS WELL AS TO THE WAGE EARNER'.

The concept of honour is important in bringing out a crucial element of the pluralistic perspective on the working assumption that there exists between the parties something approximating to a balance of power. 'COLLECTIVE BARGAINING' writes Friedmann (1972), in what has become a standard and influential study of the relationship between law and society, 'HAS SUBSTANTIALLY RESTORED EQUALITY OF BARGAINING POWER BETWEEN EMPLOYERS AND EMPLOYEES.....'.

The pluralistic attitude has now been adopted by many organisations for the management have observed that it is an advantage to have the labour force as a partner than as a rival. 'A CO-OPERATIVE WORKFORCE WAS PREFERABLE TO ONE THAT WAS NOT CO-OPERATIVE AND THE WAY TO TREAT THE WORKFORCE IN ORDER THAT IT MIGHT CO-OPERATE WAS TO BE PREPARED TO RESPECT ITS RIGHTS AS IT SAW THEM AND NEGOTIATE WITH ITS LEGITIMATE INDEPENDENT REPRESENTATIVES'. (FRIEDMANN 1972).

No organisation can be purely unitary, pluralistic or radical, but is usually in a continually changing state between the three. Various managers or supervisors might adopt a unitary stance on certain issues, or at times of crisis company employees might lean towards a unitary attitude.

Particular examples of unitary attitudes within Metro-Cammell arise when the reputation of the company is at stake, maybe with customers. At these times management ask for loyalty and co-operation and workforce representatives in their dealings with outsiders close ranks and legitimise the management's views and requests.

Occasions such as this are rare however. More often than not the company exhibits the pluralistic approach, consultation taking place before changes are made, in most areas of activity.

Examples of the pluralistic approach are inherent in various agreements relating to redundancy, discipline, grievance procedures, fringe benefits, pay and conditions etc, that are in operation with the Company, these being jointly agreed between the management and the trade unions. Furthermore, the fact that the Personnel Department is inexorably involved in so many issues suggests that the pluralistic approach is adopted within the Company for the Personnel Department is an outward expression of pluralism.

With regard to 'radical' attitudes, these are an extreme example of pluralistic ones and are exhibited more outwardly

in conflict situations. At times of difficult pay negotiations when withdrawal of labour has occurred or is imminent, it has been noticed that both parties take firm stances and pressure is brought to bear by both sides in different ways. The trade union will talk about hardening attitudes and getting the support of their colleagues in other plants or industries, whilst management would counter by talking about loss of future work, shutdown of plant, dismissing labour for breach of employment contract and similar threats. Within the Company all of these factors have been displayed on the very few occasions that serious conflict has come about. Fortunately, after the resolution of the problem, things have returned to "normality" ie, a return to the pluralistic philosophy.

Trade union involvement in most spheres of activity within the Company is the norm, although on occasions, supervisors or managers adopt a unitary approach at times of crisis when they believe the right of the "managers to manage" is challenged too strongly.

Another good example of the legitimacy of the trades unions at Metro-Cammell is the case of recruitment of labour. In many, but not all, instances, labour is recruited directly from the union offices, this being accepted as a "normal" way of recruiting. In the same way there are a number of 'closed shops' within the Company, these being working areas restricted to the particular membership of unions which have negotiated bargaining rights for the area.

Using the examples given, Metro-Cammell could be said to be closer to a pluralistic organisation than a unitary or radical one with the role of the unions being fully legitimised although at any one particular moment in time the attitudes of certain groups might be either unitary or radical.

Patterns of management - employee relations

Fox (1974) also discusses various patterns of management - employee relations and characterises them as follows:

i Traditional pattern

The traditional pattern is characterised by unitary perspectives on the part of both management and employees. The latter have been induced to accept the ideology of the former which decrees that interests are shared and that any assertion to the contrary is not legitimate.

The nature of relationships between management and rank and file may lie anywhere between the extremes of benevolent paternalistic and crudely exploitive.

ii Classical conflict pattern

As employees acquire the consciousness that they have a worth which is independent of the judgement of their masters, then they confront unitary thinking employers with pluralistic type demands to be allowed a voice in the making of certain decisions bearing on terms and conditions of employment, thus the traditional pattern passes on to the classical conflict pattern.

Trades unionism and collective bargaining appear as low trust responses by employees to what they perceive as low trust work situations created by management.

The unions see management as imposing low discretion roles upon rank and file and by hedging them about with restrictive rules, authority, discipline, sanctions and punitive attitudes indicates that it has objectives and values which it does not expect them to share. Management does not trust them, it cannot rely on their goodwill. This does not prevent management from appealing nevertheless for commitment and a sense of responsibility and from reacting with resentment and hostility when these are not forthcoming.

iii Sophisticated modern pattern

Both management and employers share the pluralistic ideology. In these situations management legitimises the union role in certain areas of joint decision making because it sees their role as conducive to its own interests as measured by stability, promotion of consent, bureaucratic regulation, effective communication or the handling of change.

Management recognises that its discretion is being limited in certain areas of decision making but it legitimises these limitations and therefore does not counter with low-trust behaviour and attitudes.

'WHEN A COMPANY ACCEPTS THE UNION AND ACTS ACCORDINGLY, THE UNION LEADERS MAY HAVE CONFIDENCE THAT MANAGEMENT WILL NOT TRY TO DESTROY THE ORGANISATION OR UNDERMINE THE WORKER'S LOYALTY TO IT.....UNION LEADERS IN HEALTHY UNION-MANAGEMENT RELATIONSHIPS.....DO NOT FEAR ARBITRARY ACTION BY MANAGEMENT, OR MANAGEMENT INDIFFERENCE TO WORKER WELFARE, OR MANAGEMENT ANTAGONISM TO COLLECTIVE BARGAINING'. Kerr, et al (1953).

iv Standard modern pattern

This, in one of its patterns is characterised by ambivalence within management toward the pluralistic ideology.

Either some members of management may be convinced unitarists ie, production personnel, whilst others are convinced pluralistics, for example members of the personnel department, or individual managers themselves may be ambivalent in the sense of fluctuating between the two according to circumstances or even mood.

Characteristics are:

- a At times of emergency and crisis the likelihood is that unitary attitudes and policies will predominate.
- b In situations short of this extreme many confusions and uncertainties may be caused by a management mixture of unitary and pluralistic perspectives.

v Sophisticated paternalistic pattern

This brings together the combination of a wholly or partly pluralistic management and a predominantly unitary-minded labour force.

vi Continuous challenge pattern

This is the reverse of classical conflict, where work-groups refuse to legitimise management's claim to assert and pursue objectives which are seen as overriding certain interests, or values of the group.

None of the patterns described can be regarded as fixed states which necessarily persist for long periods of time, neither is there a sequence of linear progress through which management employee relations move towards a state of stabilised 'maturity'.

Fox, while suggesting that there are varied possibilities and mixed patterns within any organisation, states with confidence that the day of the traditional and sophisticated paternalistic patterns are numbered.

It was suggested in the previous section dealing with "frames of reference" that Metro-Cammell displayed pluralistic tendency and certain examples were given in an attempt to illustrate this. It would therefore follow that according to Fox's classification, the Company could be said to exhibit the sophisticated modern or standard modern patterns.

However, surprisingly there are sometimes tendencies toward the sophisticated paternalistic pattern, for example when long serving employees display a tendency to accept any management instruction without question and in disregard of union instructions. Again this tendency is expressed when managers and non-unionised staff employees show deference to senior management and perform in ways far exceeding what is expected of them at times of emergency such as when vehicle deliveries are imminent and when there is a danger of the vehicle missing a shipping date in the case of export contracts. At times like this the unitary perspective on the part of the employees comes through and management display a partly pluralistic attitude.

Trust relations

Fox also states that where there is continuous conflict between management and workers, this can lead to a low trust relationship. In these situations the participants have divergent ends or values, they calculate carefully the costs and anticipated benefits of any concession; seek to minimise dependence on each others discretion and are quick to suspect and invoke sanctions against, bear illwill or default on obligations. Equally, if due to the emergence of a low trust relationship brought about by deceit or dishonesty on the part of one of the parties in the relationship, this can lead to conflict between the parties where previously there was harmony.

On the other hand a pluralistic attitude develops a relationship of high trust, one in which participants share certain

ends or values; bear towards each other a diffuse sense of long term obligations; offer each other spontaneous support without narrowly calculating the cost or anticipating any equivalent short term gain; communicate freely and honestly and give each other the benefit of any doubt that may arise with respect to goodwill or motivation.

The pattern of trust relationships is not only exhibited in the management employee relations area but between groups of workers or even between groups of managers. Inter group relationships need to demonstrate the high trust, high discretion approach if change is to take place smoothly with the minimal of upheaval or conflict between interested parties.

There are a number of factors that contribute towards this high trust relationship and these could be summarised as:

Honesty

Kept promises

Good communication

Problem sharing

Seeking opinion and advice

Co-operation and assistance

Sense of obligation

Discretion

Delegation

Sincerity

By adopting a philosophy which takes into account the continued use of these factors, high trust relationships can be maintained.

As with the various patterns of management described earlier, trust relationships are continuously variable depending upon situations that arise to disturb the balance at any particular time, trust relationships being very fragile and easily broken by careless actions or words. Stability is most likely where a high trust relationship is maintained and this relationship is developed sufficiently to withstand assault from emergencies or crises that arise.

Forms of bureaucracy

Various writers describe organisations in terms of bureaucracy. Weber (1948), in describing bureaucracy as formal organisation stated that the distinctive characteristics were that 'THE ORGANISATION OPERATES ACCORDING TO A BODY OF LAW OR RULES WHICH ARE CONSISTENT AND HAVE NORMALLY BEEN INTENTIONALLY ESTABLISHED.....EVERY OFFICIAL IS SUBJECT TO AN IMPERSONAL ORDER BY WHICH HE GUIDES HIS ACTIONS. IN TURN HIS INSTRUCTIONS HAVE AUTHORITY ONLY INSOFAR AS THEY CONFORM WITH THIS GENERALLY UNDERSTOOD BODY OF RULES, OBEDIENCE IS DUE TO HIS OFFICE NOT TO HIM AS AN INDIVIDUAL.

EACH INCUMBENT OF AN OFFICE FOLLOWS THE PRINCIPLE OF HIERARCHY; THAT IS, EACH LOW OFFICE IS UNDER THE CONTROL AND SUPERVISION OF A HIGHER ONE'.

Henri Fayol's (1949) description of bureaucracy uses the organisation chart as the visible symbol of formal organisation. The organisation chart together with the organisational manual of job descriptions being in his view, the chief instruments of industrial organisation.

Gouldner (1955) describes three forms of organisation, namely:

a Representative bureaucracy

'REPRESENTATIVE BUREAUCRACY IS ONE IN WHICH THE ORGANISATIONAL RULES ARE INITIATED AND MAINTAINED BY A MAJORITY OF ALL THE INDIVIDUALS, MANAGERS AND WORKERS ON THE GROUNDS THAT THE RULES ARE MEANS TO ENDS THEY ALL, IN SOME MEASURE, DESIRE'.

b Punishment centred bureaucracy

'PUNISHMENT CENTRED BUREAUCRACY IS A SYSTEM BY WHICH RULES ARE ENFORCED ON THE GROUNDS OF THE AUTHORITY VESTED IN SUPERIOR OFFICE, SUBORDINATES ARE ORDERED TO DO THINGS, DIVERGENT FROM THEIR OWN ENDS AND RESISTANCE FROM SUBORDINATES COUNTERBALANCES THE STRESS ON OBEDIENCE AS AN END IN ITSELF'.

c Mock bureaucracy

'MAY ALSO EXIST AS A TACIT, COLLUSIVE SYSTEM IN WHICH THE FORMAL RULES ARE DIVIDED AND REMAIN UNENFORCED'.

Gouldner's study of the changes of management in a Gypsum mine illustrate his various forms of bureaucracy. Before the arrival of a new manager, the only thing the men in the plant thought of as rules were the safety regulations. The workers willingly conformed to safety rules and this represented only a negligible barrier to management's bureaucratisation. By taking part in

organising the safety programme, workers were encouraged by their colleagues to conform. The high degree of bureaucratisation in the safety sphere appeared to be a function of:

- i Strong, managerial motivation to bureaucratise the area, born of the belief that workers are careless or ignorant of safety requirements.
- ii Low degree of worker resistance to this managerial drive.

Gouldner went on to describe the difference between surface-men and miners, the latter having much deeper custom-rooted beliefs which contrasted with the more up to date and rational outlook of surfacemen.

With the introduction of a new manager the miners saw a violation of their values as more bureaucratic methods were introduced. This led to more 'militant' resistance, in part because the miners psychological security system did not rest as heavily upon identification with authority.

The factors that acted as barriers to bureacratISATION in this case were:

- a Miners belief system.

- b Physical dangers and definitions of the mine as being a hazardous workplace.
- c Informal solidarity.

The miners saw, in the new bureaucratisation, a challenge to the existing balance of power of the relative strengths of the opposing groups.

Within Metro-Cammell, it is possible to find an organisation chart but this will probably be out of date and at the back of a folder where it is not well read. Similarly, most employees do not have a definitive job description the emphasis being on flexibility and mobility wherever possible.

In Fayol's terms therefore the Company would not rate as being highly bureaucratised or having much formal organisation.

With regard to a formal body of rules relating to the workforce in general, probably the best documented and observed are the agreements which cover pay, conditions of employment and methods of working, these being quite rigorously observed. Agreements of this form are negotiated annually for all 'collective' or unionised groups and the shop stewards, together with the Personnel Department are the custodians of these agreements. Even so, within the agreements pieceworkers have a degree of flexibility in negotiating piecework prices and are allowed to organise their own working groups, appointing their own bookholders to keep account of work done

and to organise their own rotas for overtime, out of town working and so on. Each of the working groups maintain a high degree of autonomy in these matters although they are subject to Company policy and the restrictions imposed by the shop stewards' committee.

Many of the descriptions of miners, in Gouldner's account, bear a striking resemblance to situations that occur in the Company. Departments have their own set of ethics, and discipline within the working groups often accounts for a problem even before management are aware of its existence. Demarcation issues on certain types of work are long standing and working groups which co-exist side by side with good relationships for most of the time change their character completely and become very parochial if they think an item of work which they consider traditionally to be theirs is claimed by another group.

Gouldner illustrated how an organisation exhibits aspects of each form of bureaucracy and this is equally true of Metro-Cammell. Mock bureaucracy is evident in many ways but an example from within the plant is the system of tea breaks on the shop floor. Company rules quite specifically state that from 9.30 am to 9.40 am each morning employees are allowed to sit down to have a break after making their tea using hot water urns. A canteen service is supplied whereby hot sandwiches are bought into the plant for distribution from approximately 9.20 am onwards. However, employees begin to prepare for their break from 9.15 am onwards and are all sitting

down by 9.30 am when the 'bull' sounds, not rising again until 9.45 am unless moved by supervision, who are also having their break. Thus the break lasts for half an hour and repeated efforts over the years by management and supervision has not been able to reduce it. Equally a problem is weekend overtime working where there are no official breaks but employees nevertheless sit down as in the week, even on Saturday's, having a sandwich service. This is a clear example of formal rules which are disobeyed and remain unenforced, probably because the malpractice is of long standing and would very difficult to enforce because of 10 minutes is not long enough in which to take a proper break.

Shop floor supervisors left to their own devices would operate a punishment centred bureaucracy on the grounds that this is one way in which they could exert their authority. In chapter 9 dealing with 'Safety and the Supervisor' the point is made by supervisors that they cannot enforce safety rules because of lack of discipline on the part of employees and their inability to be able to impose punishment. Formal agreements relating to disciplinary matters give them little discretion to act, and whilst they are expected to obey the instructions of their superiors without question they do not get the same reaction from hourly paid employees who seem to operate to a different set of rules in the mind of the supervisor. Thus frustration results.

Chapter 8 dealing with 'Specific Case Studies' shows how safety rules are drawn up and agreed in the plant. This is

an example of representative bureaucracy and illustrates the point made by Gouldner that safety is a good example of this type of bureaucratisation. Organisation and implementation of overtime working is another case in point. On Thursday of each week, formal overtime meetings take place between departmental management and shop stewards where management spell out their work requirements and request certain overtime working arrangements. This is discussed in detail, even in some cases to the extent that the names of employees are agreed together with the exact amount of time they will work. Once agreement is reached, both parties are then expected to conform, changes only coming about as a result of special circumstances arising at a later date which are also fully discussed. The point here is that in order to cater for additional work but distribute overtime working opportunity as equitably as possible between employees, strict control is exercised by both management and unions and all concerned obey the agreements arrived at. This is seen to be in everyone's interest and agreements are adhered to.

Formal or informal organisation

Weber described bureaucracy as formal organisation and other researchers and writers also stress the organisational characteristics in formal/informal terms rather than by use of the term bureaucracy.

Miller et al (1951) maintain that the theory of formal organisation is, in itself, quite simple.

'IT HOLDS THAT THROUGHOUT THE ORGANISATION THERE IS A STRICT DEFINITION OF AUTHORITY AND RESPONSIBILITY.....

AN ORGANISATION CAN FUNCTION BEST WHEN INDIVIDUAL IDIOSYNCRASIES, SENTIMENTS AND PREJUDICES DO NOT INTERFERE WITH OFFICIAL ACTIVITIES.....'.

The second assumption of formal organisation is that it is the only organisation, but managers find that however carefully they organise, despite the concern in anticipating problems, unanticipated ones always arise. For these eventualities formal organisation offers little guidance because it is created as a guidepost for the routine, the typical and the foreseeable.

Gouldner discovered that the informal organisation which 'allowed' work to be done was based on traditions, customs and practice on occasions creating a mock bureaucracy where management rules and regulations were ostensibly carried out but only because the informal or unofficial organisation approved it.

Pilnick (1977) describes organisations as consisting of a formal system which he denotes as being the 'official' policy and an informal system or 'shadow organisation'.

Where the group norm or informal system coincides with the official policy then there is no conflict and the official policy is seen to be acceptable. However, where they diverge conflict results and relationships break down.

In an attempt to change negative norms to ones of positive behaviour, Pilnick suggests various stages of development in attempting to isolate group norms:

- a Employees identify their group norms.
- b They evaluate their own expectations of an effective and satisfactory working environment.
- c Management ask for employee participation and co-operation to solve problems.
- d Both parties agree group objectives for change, individual involvement and responsibility.
- e Management either accept or reject employee suggestions always giving their reasons for the decision.
- f Employees monitor success of agreed action.
- g If group solution does not work out, it is raised again.

Woodward found in the study embracing the firms in S E Essex, that there was an alignment of formal and informal organisation in the unit production concerns, whereas this was not so pronounced in the other production systems.

Collective bargaining

It has already been suggested that one of the ways in which the involvement of employees or unions is legitimised is by

means of collective bargaining. This aspect of management employee relations is considered to be such an important and fundamental one that it needs dealing with here in some detail.

The Webb's (1902) believed that collective bargaining was itself essentially a rule making process while Chamberlain (1959) believed the various theories of collective bargaining could be reduced to three:

- a A means of contracting for the sale of labour.
- b A form of industrial government.
- c A method of management.

The management theory stresses the functional relationship between unions and companies who combine in reaching decisions on matters in which both have vital interests. Flanders (1970) states that unions are actually de-facto managers.

'THE MANAGEMENT VIEW IS SUPPORTED BY THE PRINCIPLE OF MUTUALITY WHICH HOLDS THAT THOSE WHO ARE INTEGRAL TO THE CONDUCT OF AN ENTERPRISE SHOULD HAVE A VOICE IN DECISIONS OF CONCERN TO THEM'.

This recognises that property ownership does not give entitlement to exercise authority. Responsibility to working.

groups gives grounds for insisting that managerial authority be showed with representatives through a process such as collective bargaining.

Flanders goes on to refer to the Slichter et al (1960) study of the impact of collective bargaining on management in the USA which concluded that written agreements arrived at by collective bargaining had limited managerial discretion in three principal ways:

- a By requiring that management follows rules for lay offs, transfers, promotions, retirements, assigning overtime, setting production standards and rates.
- b By requiring that management be reasonable or fair or that management act only with just cause, or after consultation with the union, or with the consent of the union.
- c By prohibiting certain types of conduct such as excessive overtime.

The Donovan report (1968) in discussing the principle of national or industry wide agreements and local or domestic agreements reckoned that the formal and informal systems of industrial relations were in conflict.

'THE PRETENCE OF THE FORMAL SYSTEM, OF WHICH THE INDUSTRY WIDE AGREEMENT IS THE CORNERSTONE, LEADS TO DISORDER IN THE

INFORMAL SYSTEM WHICH IS FRAGMENTED, UNMODIFIED AND OFTEN DEPENDENT ON THE WORK GROUPS CUSTOM AND PRACTICE. SOME OF THE MORE OBVIOUS RESULTS OF THE CONFLICT BEING UNOFFICIAL STRIKES, WAGE DRIFT AND INEFFICIENT UTILISATION OF LABOUR'.

Flanders (1970) in dealing with the theory and reform of industrial relations goes to some lengths to deal with the principles and practices of collective bargaining which he sees as being the principal norm creating institution in industrial relations.

He outlines two ideal types of society:

- a Centralised norm creation and enforcement which is a unitary system attempting to regulate employment relations on a unified and consistent basis where the mildest forms of disorder become a threat and are suppressed.
- b Pluralistic society where there is the greatest possible freedom and few restrictions, leading to the development of a wide variety of relatively autonomous but interacting norm-creating groups and agencies. Here, some disorder results but is accepted as legitimate.

He believes that the eruption of manifest conflict in industrial relations as groups mobilise and exert power to change old norms and fashion new ones have been met in the main by collective bargaining.

'COLLECTIVE BARGAINING KEEPS MANIFEST CONFLICT IN EMPLOYMENT RELATIONS WITHIN SOCIALLY TOLERABLE BOUNDS. THIS IT HAS DONE BECAUSE THE RULES IT PRODUCES, AS EXPRESSED IN COLLECTIVE AGREEMENTS AND IN UNWRITTEN UNDERSTANDINGS ARE SUPPORTED BY A SUFFICIENTLY HIGH DEGREE OF CONSENSUS AMONG THOSE WHOSE INTERESTS ARE MOST AFFECTED BY THEIR APPLICATION',

Mechanistic and organic theory

Burns and Stalker (1966) in a study of twenty concerns, most of them engaged in the development of electric devices and systems, among other things, look closely at the management systems of these firms, presenting a theoretical model of management organisation in dynamic terms.

For the authors there are two management systems which represent the polar extremities:

a The mechanistic form

A mechanistic management system is appropriate to stable conditioning and is characterised, amongst other things, by:

the specialised differentiation of functional tasks into which the problems and tasks facing the concern as a whole are broken down;

the precise definition of rights and obligations and technical methods attached to each functional role;

hierarchic structure of control, authority and communication;

a tendency for interaction between members of the concern to be vertical ie, between superior and subordinates;

a tendency for operative and working behaviour to be governed by the instructions and decisions issued by superiors;

insistence on loyalty to the concern and obedience to superiors as a condition of membership;

a greater importance and prestige attaching to internal (local) than to general (cosmopolitan) knowledge, experience and skill.

b The organic form

The organic form is appropriate to changing conditions which give rise constantly to fresh problems and unforeseen requirements for action, some of its characteristics being:

the contributive nature of special knowledge and experience to the common task of the concern;

the adjustment and continual redefinition of individual tasks through interaction with others;

a network structure of control, authority and communication;

omniscience no longer imputed to the head of the concern;

a lateral rather than vertical direction of communication through the organisation.

In organic systems the lead in joint decisions is taken by whoever shows himself most informed and capable, ie, the "best authority".

The two forms of system represent a polarity not a dichotomy the relation of one form to the other being elastic so that a firm oscillating between relative stability and relative change may also oscillate between the two forms. A concern may (and frequently does) operate with a management system which includes both types.

In discussing the organic form the authors make the following point:

'.....THE LESS DEFINITION CAN BE GIVEN TO STATUS ROLES AND MODES OF COMMUNICATION, THE MORE DO THE ACTIVITIES OF EACH MEMBER OF THE ORGANISATION BECOME DETERMINED BY THE REAL TASKS OF THE FIRM AS HE SEES THEM RATHER THAN BY INSTRUCTION AND ROUTINE. THE INDIVIDUAL'S JOB CEASES TO BE SELF CONTAINED; THE ONLY WAY IN WHICH HIS JOB CAN BE DONE IS BY HIS PARTICIPATING CONTINUALLY WITH OTHERS IN THE SOLUTION OF

PROBLEMS WHICH ARE REAL TO THE FIRM, AND PUT IN A LANGUAGE OF REQUIREMENTS AND ACTIVITIES MEANINGFUL TO THEM ALL.

THE BEGINNING OF ADMINISTRATIVE WISDOM IS THE AWARENESS THAT THERE IS NO ONE OPTIMUM TYPE OF MANAGEMENT SYSTEM'.

Shepard (1965) in discussing developments of organisational systems over the previous twenty five years believes there is much evidence to suggest that the optimal use of human resources in industrial organisations requires a different set of conditions, assumptions, and skills than those present in industry.

These developments include:

- a Wide participation in decision making, rather than centralised decision making.
- b The face to face group, rather than the individual, as the basic unit of organisation.
- c Mutual confidence, rather than authority, as the integrative force in organisation.
- d The supervisor as the agent for maintaining intergroup harmony and intergroup communication, rather than as the agent for higher authority.

e Growth of members of the organisation to greater responsibility, rather than external control of the members performance or their tasks.

Metro-Cammell is not easy to define in Mechanistic V Organic terms because there are elements of both present in the organisation.

For example, at the shop floor/production level there is greater importance and prestige attached to domestic, rather than external knowledge, skill and experience. To some extent this introspective view is also true at design level, and is purely a mechanistic factor. Too seldom do individuals seek solutions to problems from external rather than internal sources and 'outsiders' or newcomers are often treated with some suspicion.

On the other hand, many elements of the organic style are present including a network structure of control, authority and communication, and a lateral rather than vertical direction of communication.

For example, it is common for groups with different specialisation within the Company to convene to discuss problems such as technical problems associated with production matters or to discuss the layout of new work areas. Very often union representatives will also be present. Furthermore, there is a considerable degree of communication and liaison between managers of various departments and between supervisors of

areas, co-operating to achieve the same basic objectives. Managers and supervisors are able to make decisions within broad guidelines without constantly referring to their superior.

Having accepted that a precise definition in terms of Mechanistic or Organic organisation cannot be given to the Company, many more examples of the Organic could be given than of the Mechanistic. In an organisation where the trade unions are so well organised and where individuals are given encouragement to think for themselves and where there is joint negotiation and discussion on most work aspects, it must be classified as rather closer to an Organic structure than a Mechanistic.

Motivation theories

Petersen (1978) discusses the importance of motivation within an organisation and states that at the employee level the key motivator is pressure from the informal group. He then goes on to describe other key motivating factors as put forward by some influential management theorists, their views being summarised below:

i Conflict theory

Argyris's theory provides safety managers with insights into why people commit errors.

According to Argyris (1957) all organisations - whether industrial or any other, are structured under certain principles:

- a They have a chain of command. This causes workers to be dependent on the boss and to become passive.
- b The span of control is small. This creates dependency and reduces the freedom of the workers.
- c There is a unity of command, or only one boss. This creates dependence and highlights the subordinate role of the worker.
- d They are characterised by specialisation. Work is broken down into small tasks which leads to lack of interest.

These principles of management are, in fact, in conflict with the needs of individuals, which causes workers to become apathetic, to lack motivation, to form informal groups, to cling to group norms instead of company norms. The normal management reaction to these symptoms is more control, more specialisation and more pressure.

As a solution Argyris proposed 'levelling' with the use of group decision making, the emphasis being on involvement of people.

The levelling process is necessary to encourage lateral, rather than vertical, chains of command and is personified in modern terms by such techniques as 'briefing groups' as recommended by the Industrial Society or by

the use of Quality Circles, a technique which has achieved spectacular success in Japan. The basic concept is to bring together individuals into a group for communication, problem solving or decision making purposes so that their separate expertise can be pooled for the benefit of all, without the necessity of a boss making all the decisions and relaying these through a vertical control structure to his subordinates.

An example of this levelling process within Metro-Cammell is the safety committee where individuals from various specialisations and exhibiting a wide range of authority and responsibility sit down to discuss matters and make decisions without being too closely restricted or confined in what they can deal with.

ii Motivation - hygiene theory

Herzberg (1968) calls certain variables 'hygiene factors' and others 'motivation factors', this two-factor theory is distinct from single-factor theories which treat motivation as a unitary concept.

Hygiene

Money

Status

Relationships with boss

Company policies

Work rules

Working conditions

Motivational

Sense of achievement

Re-organisation

Enjoyment of the job

Possibility of production

Responsibility

Chance for growth

Herzberg states that by improving hygiene factors the dissatisfied worker can become satisfied but not necessarily motivated and motivation factors have to do with the job itself whilst hygiene factors are peripheral to the job.

He argues that the factors that motivate people are essentially separate and distinct from the factors that simply prevent people from becoming dissatisfied with their work (hence hygiene or maintenance factors).

Whilst theories of motivation no doubt have a place in any study of management organisation, the Herzberg approach has many critics, not least the criticism that there is not a clear dividing line between motivation and hygiene factors but a large area of overlap which is not easy to explain in "two factor" theory terms.

iii Likert's theory

Rensis Likert's (1961) studies concerned the effect of the supervisor - employee relationship on productivity and his findings were:

- a The tighter the supervisor's control over the employee, the lower the productivity.
- b The more the supervisor watches and supervises the worker, the lower the productivity.

c The more punitive the supervisor is when the employee makes a mistake, the lower the productivity.

The significance of these findings is that the more management tends to measure and control employees, the less motivation and less productivity results. More is achieved by means of informal group norms and by treating employees as mature and sensible adults.

In discussing the attitude of the group towards safety, Petersen states each group:

- a has a distinct personality
- b makes its own decisions
- c sets its own work goals - identical to or different from management's
- d sets its own moral standards - punishes as necessary
- e sets its own safety standards - which it lives by, regardless of management's standards.

In order to improve motivation of the workforce and hence improve safety standards, Petersen puts forward the following policy:

- a involve employees in setting safety standards
- b provide a self monitoring system
- c make improving safety procedures a part of every worker's job
- d share reports on safety
- e recognise safety procedures

SUMMARY

This section has been concerned with attempting to discover a management style within Metro-Cammell by describing the work of some of the best known researchers and writers who have put forward theories of management which they have devised or developed as a result of empirical studies.

In summarising this chapter a profile of the Company's management style can be drawn up by reference to the theories discussed:

Effect of technology on production

The type of production is more conducive to closer personal contacts and interest in the product, more verbal communication and better industrial relations.

Frames of reference

A more pluralist organisation rather than a unitary or radical one is apparent, with the trade unions being fully legitimised.

Patterns of management - employee relations

When using Fox's classification the organisation could be said to display the sophisticated modern or standard modern pattern with the pluralistic ideology being apparent, albeit sometimes there being a degree of ambivalence within management toward the pluralistic attitude.

Frames of bureaucracy

The bureaucratic system existing within the Company is closer to Gouldner's description of a representative bureaucracy than to the other two frames described and many of the examples cited by Gouldner can be found within Metro-Cammell.

Formal or informal organisation

Whilst there is certainly a formal organisation existing in the Company, there is also an important informal or 'shadow' organisation in being which allows for more harmony in relationships, alignment of these two types reducing the possibility of conflict.

Collective bargaining

The trade unions within the Company are fully legitimised by means of collective bargaining, which in effect indicates a high degree of concensus of opinion between management and employees.

Mechanistic and organic theory

As already stated, it is not easy to classify the Company in purely mechanistic or organic terms but many more examples of an organic nature can be given than of a mechanistic one.

From what has been suggested, there is evidence to show that the Company has a basically pluralistic approach which includes the involvement of the employees in various aspects of decision taking and legitimizes the role of the trade unions through a developed system of collective bargaining.

It has nowhere been suggested that the Company is especially progressive in its management - employee relationships or that special emphasis has been placed upon developing these relationships in a particularly systematic manner or as a result of clear policy guidelines. Rather the case is that the age and traditions of the Company coupled with a well developed union organisation within the plant have evolved a particular style of operation which could be said to be unique to the Company.

The hypothesis being tested states in part that the pattern of management and organisational arrangements existing within the Company is sympathetic to the involvement of workers in health and safety matters.

The evidence from this chapter is that the particular pluralistic style in existence creates an environment which is able to accommodate the introduction of a harmonious change, such as the introduction of safety representatives, into the plant.

Conditions could therefore be said to be ideal to enable safety representatives to effect an improvement in safety

performance. Whether or not they did will be examined in later chapters. In the meantime a quote from Burns (1969) suggests an approach to the improvement of safety performance that seems to epitomise the pluralistic philosophy:

'IN A PARTICIPATIVE SAFETY PROGRAMME, THE SUPERVISOR LEADS THE GROUP IN DEVELOPING ITS RULES, WHILE THE SAFETY DIRECTOR IS THE EXPERT WHOM THE GROUP CONSULTS FOR PROFESSIONAL ASSISTANCE. BOTH MEN SHOULD ENCOURAGE MEMBERS OF THE GROUP TO EXPRESS THEIR OPINIONS AND SHOULD ASK NUMEROUS QUESTIONS TO BE CERTAIN THAT AN ISSUE HAS BEEN THOROUGHLY DISCUSSED. WITH THEIR HELP, THE GROUP WILL DEVELOP SAFETY STANDARDS THAT MEET THE NEEDS OF THE DEPARTMENT.

ONCE WORKERS DECIDE WHAT RULES OF SAFETY ARE APPLICABLE TO THEIR DEPARTMENT, THEY WILL ACTUALLY ENFORCE THE RULES THEMSELVES. THE FEW EMPLOYEES WHO INSIST IN VIOLATING THE RULES WILL BE PERSUADED TO CONFORM TO SAFETY STANDARDS UNDER THREAT OF OSTACISM. SINCE THE NEED TO BE ACCEPTED BY THE GROUP IS A POWERFUL MOTIVATOR, THE VIOLATOR WILL USUALLY ADOPT THE SAFE METHODS.

THE PARTICIPATIVE APPROACH TO ESTABLISHING SAFETY RULES CAN ALSO SPUR AN EMPLOYEE'S SENSE OF INDIVIDUAL COMMITMENT TO THE OVERALL OBJECTIVES OF THE DEPARTMENT. HIS ROLE IN FORMULATING THE RULES HE MUST OBEY REINFORCES HIS SELF RESPECT AND AFFIRMS HIS VALUE TO THE DEPARTMENT.

THE SATISFACTION HE GAINS WILL STIMULATE HIM TO CONTRIBUTE TO HIS DEPARTMENT'S EFFORTS IN OTHER AREAS BESIDES SAFETY'.

CHAPTER 5

Use of accident data and statistics

In a consultative document published by the Health and Safety Commission (1977) "Proposals for the Modification of Accidents and Dangerous Occurrences", three uses were claimed for national occupational accident statistics. 'SUCH INFORMATION SHOULD ALLOW THE HEALTH AND SAFETY EXECUTIVE TO:

- A INVESTIGATE PROMPTLY THE CAUSES OF ACCIDENTS AND DANGEROUS OCCURRENCES,
- B MEASURE SAFETY PERFORMANCE AND CHANGES IN ACCIDENT PATTERNS,
- C MEET DEMANDS FOR STATISTICAL AND RELATED INFORMATION FOR THE GOVERNMENT, PARLIAMENT, INDUSTRY AND OTHER BODIES'.

This section of the thesis will deal with the relationship between accident data and changes in safety performance.

Before going on to analyse data collected in Metro-Cammell over a four year period, it is necessary to examine the limitations of the approach and to define more closely what is being attempted.

It is appropriate before looking at the data collected and before examining the concepts that are to be measured, to briefly consider the use of historic data and any limitations or reservations about its use that might be relevant.

In discussing records and their use, Raffel (1979) commences with an examination of the record event relationships. A record, at least from the viewpoint of the researcher, is not direct observation and gathering information from records does not require the co-operation of the record's subjects. Records also contain 'bias', some records even being blatantly dishonest. Even relatively 'honest' records may present only a one-sided view of the events they purport to describe. For these reasons, records must be treated with some suspicion bearing in mind their limitations in not being the events themselves but merely someone's account, very often a brief account, of the event. 'RESEARCHERS WHO USE RECORDS IN THEIR STUDIES AND METHODOLOGISTS WHO DISCUSS PROBLEMS INHERENT IN RECORDS SHARE A BASIC COMMITMENT TO CONCEIVING OF RECORDS AS SOURCES OF DATA, HOWEVER INADEQUATE, WHICH PERMIT INFERENCES, ALBEIT NOT CERTAINTY ABOUT THE REAL WORLD'. (Raffel 1979).

Records may or may not be adequate for the task for which they are used, but in many instances they provide the only available data. However, great care should be taken, where possible, to examine the 'pedigree' of the record before deciding how much reliance should be placed upon it.

The phrase, 'measurement of safety performance, used in the consultative document, is used extensively in the literature but its meaning needs some examination.

Hughes (1977) noted that there are few objective methods of measuring safety performance whilst Saunders (1979) suggests that there are a number of factors which can be measured thus leading to an indication of changes in safety performance. These factors are:

- i Management performance - the first line managers, specialist and departmental managers, safety advisors and senior management all have a role to play in reducing accidents and encouraging safe methods of working. However, few attempts at measuring the effectiveness of these groups are made.
- ii Safety activity performance - the measurement of activity of people, policies, procedures and systems. Saunders argues that it is not always clear whether performance is measured in terms of their existence or their effectiveness.
- iii Accident and injury performance - an area which lends itself to measurement but which may be criticised on the grounds that it concentrates on failures rather than prevention of failures and because there are serious limitations to the actual meaning of the data collected.

Saunders concluded that it was not possible to identify a comprehensive method for measuring safety performance which could be recommended as a basis for comparative research between similar industries. 'AT PRESENT ACCIDENT AND INJURY STATISTICS SEEM TO OFFER THE ONLY FEASIBLE DATA BASE BUT WOULD FIRST REQUIRE STANDARDISATION OF COLLECTION METHODS AND OF DEFINITIONS IN COMMON USE'. (Saunders 1979).

Petersen (1978) in discussing the problem of measuring safety performance suggests that the key to effective line safety performance is management procedures that fix accountability. He argues that management should direct the safety effort by setting achievable goals and by planning, organising and controlling to achieve them. He goes on to state that 'PERHAPS OUR INABILITY TO CREATE THESE NEEDED MEASURES (OF SAFETY PERFORMANCE) IS ONE REASON FOR OUR LACK OF GOOD SAFETY PERFORMANCE'.

Others including Tarrents (1965) and Diekemper et al. (1970) examine the problems of measuring safety performance but there still does not exist an approach which has gained sufficient general acceptance to be used across industry.

Thus while accident data is widely used to measure safety performance, as a criterion measure it has many critics.

For example, Phillips (1978), states that a variety of sources suggest that the inaccuracy of publised accident statistics continues to occur and that some type of accident are under-reported by as much as 40%.

McMillan (1980), in reviewing the approach to injury records in naval repair yards, quotes an example from 1978 of 400 reported accidents arising from 6226 work related injuries treated in medical centres, which he states indicates the extent of under-reporting.

In investigating the significance of using published accident data as a measure of safety performance, Shipp and Sutton (1972) discuss the extent of 'mis-reporting' which reduces the value of available accident data.

The main headings under which mis-reporting (errors of both omission and commission including over and under reporting and incomplete or inaccurate information being returned), occurs are:

a Absence not the result of an industrial injury

This error effect arises directly from the discretionary element in absenting oneself from work and could be reduced considerably if the injury criterion is based on well-defined medical conditions eg, fracture, dislocation, etc.

b Industrial injury not reported

This effect also arises from the personal discretionary element in reporting fairly minor injuries and will be present whatever the form of reportable injury - absence, medical condition etc, - as long as minor injuries are reportable.

This discretionary element, according to Hale and Hale (1972), has been recognised for many years and reported injury rates have been found to depend on:

- Economic pressures such as levels of industrial injury benefit and adverse economic conditions.
- Length of service of the employees concerned, with reported injury rates of workers being found to be higher during their early years of service.
- Social pressures in the workplace such as running safety competitions has led to suppression of injury reports.

c Inadequate communication within the reporting company

These errors apparently arise from shortcomings in the internal communications system in the firm with individuals not being notified as necessary for records to be maintained.

d Lack of information about the injury

Information given to the Factory Inspector may be seriously inaccurate in that further information was discovered after the report was made, there being no obligation on an employer to make subsequent corrections to a report except in the case of an injury which proves fatal within a year and a day of the accident.

e Ignorance of the law

Even though the correct information is available within the work establishment, ignorance of what should be reported and how it should be done can prevent the information getting to the appropriate Inspectorate.

f Oversight, indifference and neglect

Where individuals who are required to collect and transmit information do not believe it to be relevant to their own jobs or activities or to achieving their own goal, then they will not carry out the task as conscientiously or as accurately as if the information were seen to be relevant and of use to them.

Shipp and Sutton (1972) conclude that the accuracy and reliability of current statistics could be improved by:

- 'a MOUNTING A CAMPAIGN TO REDUCE LOSS OF ACCIDENT DATA BY OVERSIGHT, INDIFFERENCE AND NEGLECT, AND BY IGNORANCE OF THE LAW;
- b INCREASING THE MINIMUM SEVERITY (OR LENGTH OF ABSENCE) OF REPORTABLE INJURIES;
- c CHANGING WHERE NECESSARY TO A MEDICAL DESCRIPTION OF REPORTABLE INJURIES'.

Their report also concludes that:

- i the coverage of injury reporting should be extended to all employees;
- ii there should be two criteria by which injuries are reported and classified.

The first should apply to initial notifications and include superficial injuries and apply to more than 3 days absence. The second should apply to more serious injuries and be defined in terms of specific medical conditions.

- iii Inspectorates should collect statistics on the extent of risk, number of employees, time at risk as appropriate, associated with the serious injuries reported and publish statistics on injury incidence and frequency rates.
- iv A study should be undertaken on the feasibility and benefit of extending information collected to include the causes of the accident which led to the reported injury.

A number of recommendations made by the authors are covered by new regulations which came into effect on 1 January 1981. The Notification of Accidents and Dangerous Occurrences Regulations (1980) simplify and extend the law on notification of dangerous occurrences and accidents at work and follow from the consultative document referred to earlier and published in 1977.

The new Regulations include seven to eight million 'new entrants' to health and safety legislation cover who will for the first time have notification requirements imposed on them and also for the first time there will be information collected on fatal and serious accidents to members of the public arising from work activities.

Furthermore, instead of reporting separately to both the HSE and the Department of Health and Social Security (DHSS), the Regulations allow for one report to be made on a form revised to meet the joint needs of the HSE and DHSS.

Definitions of 'major injuries' are included and fourteen scheduled dangerous occurrences are described, these latter cases covering the situation where although no personal injury is sustained, the incident has the potential for doing so, in other words, 'a near miss'.

Whilst the new Regulations go some way to answering the criticisms of the present system of reporting they do not go far enough to ensure that the publicised accident statistics in future will more accurately reflect the actual situation within industry.

Nevertheless, some action is being taken to make accident statistics more relevant but there is a continued need to monitor the effects of the new legislation and make further changes as necessary in order to lessen the criticism levelled at nationally published accident statistics.

Having described some of the shortcomings of using accident statistics on a national basis, it becomes necessary to examine the value of using company accident statistics.

Whilst many of the criticisms levelled at reportable accidents by Hale and Hale (1972) could also be levelled at statistics collected by Metro-Cammell, the resulting effects are probably reduced by the fact that the communication system within the company is quite good in that it is small enough for the Safety Officer to know of all major accidents (those resulting in absence from work of more than 3 days) and information gained about the accidents following the subsequent investigation is quite comprehensive. Furthermore, there is little or no ignorance of what should be reported and accountability of individuals connected with accident reporting is good enough to ensure little in the way of oversight, indifference and neglect.

It could be concluded therefore, that the accident statistics discussed in the following pages more accurately reflect the true situation with respect to accidents within the company than do nationally published statistics reflect the national position.

There are two basic types of accidents used in the analysis:

i Minor injuries

The first report of any accident taking place within the company that requires treatment in the surgery or at a

first aid post. This definition does not include re-dressings or further treatment.

ii Major injuries

Those resulting in absence from work of more than three days.

There are two company safety procedures relevant to accident records, these being:

A3 - Accident reporting see (Appendix 3) for details of procedure.

R1 - Maintenance of accident records see (Appendix 4) for details of procedure

All employees are encouraged through notices on safety boards and by exhortation from safety representatives and management to report to the works surgery even for minor accidents, ie, minor cuts or bruises, dust in the eye, splinters etc. The employee attitude surveys discussed later show that employees endorse this fact that they are encouraged to attend.

The works surgery is fairly centrally located within the company so that no employee has more than about 400 yards to walk to receive attention. Employees are also encouraged to report for treatment for medical as distinct from injury treatment. The relationship between the employees and the surgery staff is excellent and has been for many years, witness a factory collection for a former surgery sister who left the Company to start a family totalled over £500.

Recorded injuries are graded according to the following definitions:

a Agency of injury

eg, falls of persons

falls of materials

handling

stepping or striking against objects etc.

b Location of injury

eg, head and neck

eyes

arms, including wrists

hands, including fingers etc.

c Nature of injury

eg, cuts or lacerations

punctures

bruises/contusions/abrasions

fractures and crushes etc.

When injuries are reported and treated, they are graded in accordance with the above categories, each grade having a code. The surgery staff communicate this information to the personnel department where the statistics are compiled and consolidated onto summary sheets; a copy of such an accident record is included as Appendix 5.

Three-monthly summaries for both individual departments and the plant as a whole are sent out to all managers, supervisors and safety representatives and further detailed information includes:

- i the total time lost due to all injuries
- ii a breakdown of numbers of minor and major injuries and the time lost for each
- iii the total hours worked in the period
- iv the accident frequency rate

Once data on injuries has been collected, ways are sought to compare the position between two time periods and in this connection the use of indices is useful.

The few generally accepted indices that are used, are described below and their relevance to this study is discussed.

a Accident Frequency Rate

$$\frac{\text{Number of major injuries} \times 100,000}{\text{Numbers of hours worked}}$$

This index is a measure of how often major injuries occur, or the likelihood or probability that a member of the workforce will sustain an injury in a given period of time.

Its validity is somewhat suspect, particularly in smaller organisations where less than 100,000 man hours are worked per annum. For example, in a factory where only 50,000 hours are worked annually the occurrence of one lost-time accident would result in a frequency rate of 2.0. However, this would not necessarily mean that a further major accident would have occurred had 100,000 man hours been worked. Statistics of this kind cannot tell us when an event will occur, only about the probability of its occurrence.

b Injury Incidence Rate

$$\frac{\text{Number of major injuries} \times 100,000}{\text{Total employees}}$$

This is the expression of lost-time accidents in terms of numbers at risk. The criticism levelled at the Frequency Rate also applies here.

c Injury Duration Rate

$$\frac{\text{Man-hours lost following injury}}{\text{Injury where time lost exceeds three days injury}}$$

Because the definition of major injury is where more than three days time is lost, the index is an indication of average time lost per major injury and is one measure of severity.

For example, if the average time lost per major injury increases from 80 hours or 10 days to 160 hours or 20 days, this gives an indication that whilst there might only be the same number of major injuries, they are likely to be more serious in their effect.

The factors noted by Hale and Hale (1972) regarding limitations of using accident statistics pointed out that periods of absence from work following an injury were based on a number of factors, not merely the severity of the injury. This must be borne in mind when considering the use of measures of severity.

d Injury Severity Index

This is a measure which relates incidence rates per 100,000 at risk. It applies to categories or injuries published in official government statistics, the descriptions being:

Group 1 (ie severe)

These are injuries which are both severe and unambiguously the direct and undoubted result of an accident at work. Fatalities are included in this group.

Group 2

a Admitted to hospital as an in-patient for at least twenty four hours.

b Absent from work for more than 28 days.

Group 2 injuries include those where there is a legitimate doubt whether they were caused by a truly accidental happening at work ie, strains and sprains.

Group 3

Those which are not severe and which do not result in absence for more than 28 days or in admission to hospital for in-patient treatment.

The medical definitions for these classifications are included in Appendix 6.

e SAFE-T-SCORE

Petersen (1978) states that 'WHEN PAST PERFORMANCE IS USED AS A STANDARD, IT IS OFTEN DIFFICULT TO KNOW WHETHER THE CHANGES THAT HAVE OCCURRED ARE TRULY SIGNIFICANT, REFLECTING A DIFFERENT COMPANY PERFORMANCE, OR WHETHER THEY ARE MERELY CHANCE HAPPENINGS, RANDOM FLUCTUATIONS'.

The Safe-T-Score technique is based on a statistical quality control test which is used to examine the mean of two groups of comparable data for significant differences.

$$\text{SAFE-T-SCORE} = \frac{\text{frequency rate now} - \text{frequency past rate}}{\sqrt{\frac{\text{frequency past rate}}{\text{million worker} - \text{hours now}}}}$$

The Safe-T-Score is a dimensionless number. A positive Safe-T-Score indicates a worsening record; a negative Safe-T-Score indicates an improved record over the past.

The Safe-T-Score can be interpreted as follows:

If the Safe-T-Score is between +2.00 and -2.00, we know that the change is not significantly different. The variation can be explained by reference to random fluctuations only and these may in fact have been an improvement or a decrease, but the formula is insufficiently sensitive to detect it.

If the Safe-T-Score is over +2.00, we know that the record is significantly worse than it was in the previous period. Something has happened and many explanations are possible.

If the Safe-T-Score is under -2.00, we know that the record is significantly better than it was in the last period. Again something has happened.

f Other statistical measures

In discussing safety performance, Petersen (1978) also refers to the need to detect the presence of new accident causes which result in accident rate fluctuations, suggesting that the position has become unstable. He argues that statistical control techniques, as used in quality control programmes, can be used equally as well for accident and injury statistics.

'STATISTICAL METHODS CAN HELP US TO DO FIVE THINGS: (1) PLAN PROGRAMMES FOR OBTAINING DATA SO THAT RELIABLE CONCLUSIONS CAN BE DRAWN FROM THEM, (2) ORGANISE AND ANALYSE OUR RAW DATA TO BRING OUT THE MAXIMUM INFORMATION, (3) ESTABLISH OR PIN-POINT CAUSE-AND-EFFECT RELATIONSHIPS, (4) ASSESS THE RELIABILITY OF OUR CONCLUSIONS AND (5) MONITOR TRENDS AND PROCESSES'.

The control chart is the working tool of statistical control. On it the observed accident rates are plotted against time, with the overall accident rate or mean for the entire period. Then upper and lower limits are computed such that the possibility that an accident rate will exceed the limits by chance alone is very small.

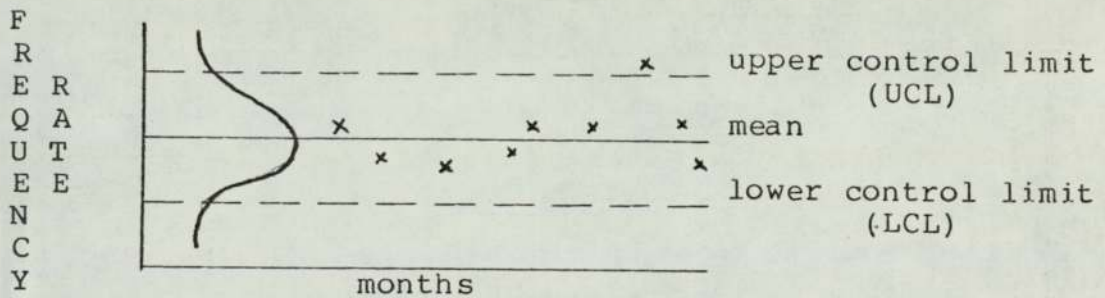
From study of statistical control chart data, we can tell whether the system is a relatively constant one. If it is, we have a stable or acceptable situation. Conversely we can tell whether the system has changed. If an accident rate exceeds the upper limit, this signals a change for which there is an assignable cause.

Similarly, when the point falls below the lower limits, we infer that there has been a change for the better.

Statistical control techniques offer a mean for making the work of accident reduction more effective and efficient. They cannot assign cause, but they can indicate how to find causes.

A control chart can be constructed by taking the Accident Frequency Rate and plotting it against time. Having previously calculated the upper and lower control limits it can then be determined when something has changed significantly by observing values plotted on the curve which are outside of the limits. An example of a control chart is illustrated in Figure 1 which also shows the mean Frequency Rate for the total period.

Fig. 1 Control chart for accident frequency



Source: Petersen (1978)

To establish upper and lower control limits the standard deviation in the accident frequency rate has to be calculated using the formula:

$$SD = \sqrt{\left[\frac{\Sigma (F - Fav)^2}{N-1} \right]}$$

Where Σ = sum of the quantities $(F - Fav)^2$

F = observed frequency for the period

Fav = Average frequency

N = Number of observations giving average frequency

In order to establish a 95% probability that if a frequency rate for any given period crosses a control limit it was as a result of some cause, the control limits are calculated as:

Upper Control Limit = Fav + (2 x S.D)

Lower Control Limit = Fav - (2 x S.D)

Analysis of data

Having described the analytical techniques that are to be used, it is now possible by insertion of the appropriate data to attempt to draw certain conclusions from the analysis.

Appendix 7 shows the graphed relationships between:

Frequency Rate

Incidence Rate

Duration Rate

Severity Rate (Group 1 Injuries)

over the period 1976 to 1979 inclusive.

Appendix 8 shows the change in all accidents frequency rate over the same period, with the average frequency (Fav) and the upper and lower control limits UCL and LCL being superimposed.

Results (1977)

When comparing the company injury statistics of 1977 with those of 1976 each of the Frequency, Incidence and Severity Rates show a fall of approximately 40% whilst the Duration Rate increased by 50%.

One would expect Frequency and Incidence rates to follow a similar pattern because numbers employed and hours worked are directly related. However, the Severity Rate would not necessarily follow suit. In this case it does. This suggests that not only did the number of reportable injuries decrease but also that severe injuries fell by a similar percentage indicating that the fall in reportable (major) injuries was matched by a corresponding fall in the most severe (group 1) injuries.

It is expected, (even allowing for the factors already mentioned concerning why employees lose time from work after an accident), that the most severe injuries result in a greater length of period of absence. This being the case, if group 1 injuries decrease by a similar percentage to other reportable injuries, the Duration Rate would be expected to remain reasonably static. What did in fact happen is that the Duration Rate increased by 50%. This suggests that the time lost by those injured increased for some unaccountable reason.

It is quite possible of course that in dealing with comparatively small numbers of major injuries an abnormal length of absence following one injury can significantly affect the

Duration Rate and lead to the supposition that the absence for all injured persons is greater.

When considering the "All Injuries" Frequency Rate, which is the ratio of all injuries, (not merely time lost injuries) to hours worked, this only shows a 10% fall during 1977 compared with a 40% fall in the reportable injuries Frequency Rate. This suggests that the decrease in major injuries was greater than the decrease in minor injuries, even though the Duration Rate increased.

Appendix 9 shows the calculation of Accident Frequency Rate Control Limits, for each quarter year from the beginning of 1975 to the end of 1979. Appendix 9a) shows the calculation of control limits using 1975 accident data only, whilst Appendix 9b) shows the corresponding control chart.

Using data from the years 1975-1979 incl. the Average Frequency Rate (Fav) was 161.0 the Upper Control Limit (UCL) was 209.2 and the lower control limit (LCL) 112.8. Using 1975 data Fav was 193.7, UCL 280 and LCL 107.4

The indication here is that the injury pattern is a stable one with a 95% probability that no statistically significant changes occurred during the period of study to push the Frequency Rate outside the control limits.

Appendix 10 shows the calculation of Safe-T-Scores during the study period.

The scores for 1976 and 1977 are -6.30 and -4.39 respectively which indicates, according to the Petersen analysis, that the safety performance is significantly better than in the respective previous periods.

In summarising the safety performance for the year 1977, the following points emerge:

- i Lost-Time Frequency and Incidence Rates fell by approximately 40%.
- ii The All Injury Frequency Rate fell by 10%.
- iii The Severity Rate fell by 38%.
- iv The Duration Rate increased by 50%.
- v The Safe-T-Score indicated a statistically significant improvement in safety performance.

Conclusions (1977)

During 1977 there are indications of a significant improvement in safety performance with lost-time injuries falling by a greater percentage than all injuries, and all Indices falling except Duration Rate.

Results (1978)

Using a similar analysis, the following points emerge for 1978:

- i Lost-Time Frequency Rate increased by 95% and Incidence Rate by 110% compared with 1977.
- ii Severity Rate increased by 47% compared with 1977.
- iii Duration Rate fell by 52% compared with 1977.
- iv All Injuries Frequency Rate remained virtually constant when compared with 1977.
- v The Safe-T-Score indicated no significant difference, the variation being explained only by reference to random fluctuations, the formula being insufficiently sensitive to detect whether there was an increase or decrease in performance.

During 1978 there was a 33% increase in labour which put strains on existing facilities and available working space, this undoubtedly being detrimental to safety performance. For the first time in many years the company was expanding on a large scale and this brought about changes in working systems and a large influx of 'green' labour, unacustomed to the type of work involved.

In an analysis of more than 2,000 accidents, Powell et al. (1971) found a strong correlation between an increased injuries rate and recruitment of new labour.

In a simple attempt to test this hypothesis a random check on injuries reported during October 1979 was taken at the company and the results are shown in Table 1.

Table 1 Relationship between length of service and injuries

<u>Length of Service</u>	<u>October 1979</u>			
	<u>Employees</u>	<u>%</u>	<u>All Injuries</u>	<u>%</u>
Under 1 year	363	29	123	40
1 - 5 years	450	36	83	27
Over 5 years	<u>437</u>	<u>35</u>	<u>102</u>	<u>33</u>
	<u>1250</u>	<u>100%</u>	<u>308</u>	<u>100%</u>

Appendix 11 shows the calculation of the chi-squared. $\chi^2_{(0.001)}$ is the value of χ^2 which has the probability of 0.001 of being exceeded and because the sample value of 20.81 is greater than the value of 13.82 as taken from the chi-squared table, it can be inferred that the data does establish a strong connection between accidents and length of service.

Conclusions (1978)

There are indications in the 1978 results that, the safety performance worsened when compared with 1977, but if one examines the Petersen analysis of the Safe-T-Score technique the performance is not significantly worse.

Whilst the lost-time frequency rate worsened, the increase in severity rate did not match it, which indicates that there

was a greater increase in Group 2 and 3 type injuries than in the more severe Group 1 type. On this occasion the duration rate bears out the indications that lost-time accidents were of the less severe type.

Results (1979)

When comparing 1979 with 1978 the following points emerge:

- i Lost Time Frequency Rate remained static and Incidence Rate fell by 3.6%.
- ii Duration Rate increased by 13.5%.
- iii Severity Rate increased by 161%.
- iv The All Injuries Frequency Rate fell by 10% and remained below Fav.
- v The Safe-T-Score of -6.10 indicates the safety performance as being significantly better than the previous year.

During 1979 there was a further influx of new labour, particularly during the first six months, putting severe strain on working arrangements and facilities.

The large increase in Group 1 injuries during 1979 accounts for the 161% increase in Severity Rate whilst the Duration Rate also increased but not to the same extent. These two

indices would be expected to show a similar trend year by year because in general terms, the more severe the injury, the greater the period of absence from work. However in this analysis this is not the case for some unaccountable reason.

However, the other indices show either no change from the year before or an improvement in safety performance.

Conclusions (1979)

In summarising the results for 1979, it could be said that indices measuring all injuries or just major injuries shows an improved safety performance but the index directly related to Group 1 injuries showed a worsening performance. The Safe-T-Score analysis suggests that the safety performance was significantly better than in 1978.

Analysis of results 1976 - 1979 inclusive

The hypothesis to be tested here is that since 1975 there has been a general improvement in safety performance and the following points are intended to support the claim:

- i The all injury frequency rate (Table 2) shows a continuing reduction over the period 1976 - 1979 with only a slight upturn in 1978.

Table 2 Variation in All Injury Frequency Rate 1975 - 1979 inclusive

All Injuries Frequency Rate

		<u>UK</u>
1975 =	$\frac{2116 \times 100,000}{1085728}$	= 194.9
1976 =	$\frac{1708 \times 100,000}{1015489}$	= 168.19
1977 =	$\frac{1677 \times 100,000}{1109972}$	= 151.08
1978 =	$\frac{2426 \times 100,000}{1582625}$	= 153.3
1979 =	$\frac{3007 \times 100,000}{2190970}$	= 137.2

- ii The Major Injury Frequency Rate, Incidence Rate and Severity Rate indicated an improvement in 1977 with a turnabout in 1978, which could well be because of the rapid influx of new labour and all the problems this brings.

The recruitment pattern continued in 1979 and whilst the Frequency and Incidence Rates remained more or less constant, the Severity and Duration Rates increased because of the large increase in Group 1 injuries.

There is the possibility that if new labour had not been introduced, the improvement indicated in 1977 would have continued through 1978 and 1979.

- iii At no time during the period under study did the All Accident Frequency Rate ever approach the upper control

limit, in fact, it showed a marked trend towards approaching the lower control limit in 1979.

iv The Safe-T-Score analysis at no time indicates a high positive score, which would suggest to use Petersen's words '.....THAT THE POSITION HAD BECOME DANGEROUSLY UNSTABLE AS A RESULT OF SIGNIFICANT CHANGES'. On the contrary, out of the four years examined, only one set of figures was positive, the other three being high negative scores. This indicates that the safety performance is significantly better than it was in the period prior to 1976 and that something happened to improve the position.

Conclusions

If the Safe-T-Score technique alone had been used to measure safety performance there would have been very strong indications to suggest that there had been significant changes in the organisation to bring about the calculated improvement in safety performance. However, not all the measurement techniques tell the same story but overall there are enough signs to indicate that over the period there was an improvement in safety performance.

When attempting to analyse the reasons why the injury statistics indicate an improved safety performance, there are a number of factors which need to be taken into account.

- i A full time Fire and Safety Officer was appointed in mid 1975. His main function is to monitor and control the implementation of safe working practices on the shop floor and his influence in improving the awareness of employees towards health and safety hazards is believed to have some effect on safety performance. Chapter 11 discusses in detail the activities of the Fire and Safety Officer.
- ii By late 1976, the influence of the 1974 Act had become more apparent, with the Company publishing its health and safety policy. At the same time some health and safety training for supervisors and managers had begun and this had the effect of sharpening their awareness. Many of the supervisors, and to some extent the managers, were critical and concerned about some provisions of the Act, including the criminal law penalties imposed upon any employee who is judged by the courts to be negligent. Chapter 9 is devoted to the role of supervisors in health and safety, and their contribution to the improved safety performance over the period studied is examined in detail.
- iii A restyled health and safety committee was formed in August 1976. The likely effect on safety performance is examined in chapter 10.
- iv In advance of the 1977 Safety Committees and Safety Representative Regulations, safety representatives were

appointed in the company. Chapter 12 discusses their probable influence on health and safety.

v A fatal accident occurred in September 1976 which was the first experienced by the company in many years. Although the likely effect of this is difficult to quantify, it certainly led to a greater awareness of health and safety matters on the part of some employees. From personal observation it became obvious that many employees took health and safety affairs more seriously after this event, and it led the company to carry out a very serious examination of existing safety arrangements and led myself to press with increased vigour for the drawing up, approval and implementation of formal company safety procedures, the initiation of which came about as a result of the 1974 Act.

Chapter 8 deals with the formulation and implementation of safety rules and suggests what effect this has had on safety performance.

vi Following the introduction of the Protection of Eyes Regulations (1974), a campaign was launched in mid 1976 to reduce eye injuries. Prior to the campaign eye treatments were making up 33% of all injuries treated by the surgery staff and as a result of the efforts of all concerned, this reduced to around 20% 6 months later, continuing at this lower rate during the remaining period of the study.

vii During 1978 and 1979 there was an 80% increase in shop floor labour employed, from approximately 700 employees in early 1978 to over 1250 in late 1979. It has been suggested previously that a strong correlation exists between length of service of employees and numbers of injuries and there are indications that this recruitment had a detrimental affect on safety performance during 1978 and 1979. It is argued that this is one of the factors that prevented the improvements recorded in 1977 from continuing into 1978 and 1979.

CHAPTER 6

EMPLOYEE ATTITUDES TO HEALTH AND SAFETY

In giving evidence to the Robens Committee, the Department of Employment (1970) saw the future development of legislation as 'LYING MORE IN MEASURES DESIGNED TO INFLUENCE ATTITUDES RATHER THAN IN MORE AND MORE DETAILED REGULATION OF PARTICULAR HAZARDS AND CONDITIONS'.

The Robens Committee Report itself stated: 'IF STANDARDS OF SAFETY AND HEALTH AT WORK ARE TO BE IMPROVED, THIS MUST BE DONE THROUGH INFLUENCES WHICH OPERATE CONTINUOUSLY ON THE DAILY ROUTINE OF THE WORKPLACE. THE MOST IMPORTANT INFLUENCES ARE BETTER ATTITUDES AND BETTER BEHAVIOUR'.

In assessing the details surrounding over 2000 accidents, Powell et al. (1971) thought that attitudes must be changed if safety technology was to be more effective.

According to these authors, two things were required:

- 'a MANAGEMENT MUST BE INDUCED TO TAKE AN INTEREST AND LOOK AT WHAT WAS REALLY HAPPENING ON THE SHOP FLOOR.

- b WORKERS ON THE SHOP FLOOR MUST BE ENCOURAGED TO FEEL THAT SOMETHING OUGHT TO BE DONE. OFTEN IT CAN. SHOP FLOOR SAFETY REPRESENTATIVES COULD ENCOURAGE THIS, IF THEY CAN BE TAUGHT WHAT TO LOOK FOR'.

The inference drawn from the above quotes is that by changing attitudes to safety, changes in behaviour will follow and an improvement in safety performance will result. The whole question of the relationship between attitudes and behaviour however is riddled with traps for the unwary and a look at relevant literature is necessary before any study of employee attitudes can be made.

Allport (1935) defines an attitude as '.....A MENTAL AND NEUTRAL STATE OF READINESS, ORGANISED THROUGH EXPERIENCE, EXERTING A DIRECTIVE OR DYNAMIC INFLUENCE UPON THE INDIVIDUALS RESPONSE TO ALL OBJECTS AND SITUATIONS WITH WHICH IT IS RELATED'.

Lapierre (1934) defined a social attitude as a '.....BEHAVIOUR PATTERN, ANTICIPATORY SET OR TENDENCY, PREDISPOSITION OR SPECIFIC ADJUSTMENT TO DESIGNATED SOCIAL SITUATIONS OR, MORE SIMPLY, A CONDITIONED RESPONSE TO SOCIAL STIMULI'.

Following an extensive review of the empirical literature on attitude - behaviour consistency, Wicker (1969) found '..... LITTLE EVIDENCE TO SUPPORT THE POSTULATED EXISTENCE OF STABLE, UNDERLYING ATTITUDES WITHIN THE INDIVIDUAL WHICH INFLUENCE BOTH HIS VERBAL EXPRESSIONS AND ACTIONS'.

On the other hand, there are examples cited where there is consistency between the relationship of attitudes and behaviour. Kelman (1974) points out that high consistency has been documented between political attitudes and political

participation of various sorts, and between attitudes toward racial and national groups and association with members of those groups. Goodmonson and Glandin (1971) obtained a correlation of 0.58 between attitudes toward organ transplants and willingness to commit oneself to donating a bodily organ after death.

Thus, examples can be quoted to suggest either a predictive relationship between attitudes and behaviour, or a non-predictive relationship. The subject needs to be considered further in order to formulate a hypothesis that can be, and preferably has been, tested.

Regan et al. (1977) sets out such an hypothesis, namely that '.....PEOPLE WHO FORM THEIR ATTITUDES ON THE BASIS OF DIRECT BEHAVIOURAL INTERACTION WITH THE ATTITUDE OBJECT WILL DEMONSTRATE SIGNIFICANTLY GREATER ATTITUDE - BEHAVIOUR CONSISTENCY THAN INDIVIDUALS WHOSE ATTITUDES WERE FORMED BY OTHER MEANS'.

In carrying out two experiments the authors came to the conclusion that in both studies greater attitude - behaviour consistency was demonstrated by the subject who had direct prior action experience with the attitude object. They suggested that when a person has had direct prior interactional experience with the attitude objects, this resulted in an attitude which is more clearly and confidently held. Faced with a situation providing a variety of action alternatives, the individual is likely to be both more highly motivated to

act consistently with the attitude, and more confident of the likely consequences of his action.

They thus conclude '.....THE AVAILABLE EVIDENCE IS CONSISTENT WITH THE SUGGESTION THAT ATTITUDES FORMED (OR CHANGED) ON THE BASIS OF THE INDIVIDUAL'S PERSONAL EXPERIENCE ARE LIKELY TO BE MORE CLEARLY AND STABLY HELD, AND MORE PREDICTIVE OF SUBSEQUENT BEHAVIOUR, THAN ATTITUDES FORMED THROUGH MORE INDIRECT MEANS'.

In investigating the relationship between verbal attitudes and overt acts, De Fleur et al (1958) state: 'CLEARLY ACTION ATTITUDES MAY BE DETERMINED TO A CONSIDERABLE DEGREE BY THE EXTENT TO WHICH THE INDIVIDUAL IS ACTUALLY OR PSYCHOLOGICALLY INVOLVED IN SOCIAL SYSTEMS PROVIDING HIM WITH NORMS AND BELIEFS WHICH HE CAN USE AS GUIDES TO ACTION WHEN SPECIFIC ACTION OPPORTUNITIES ARISE'. The authors go on to say that the findings of their research have at least two implications for further research:

- a In order to analyse the relationship between the verbal and action dimensions of attitudes, it may be necessary to add to attitude scales a systematic categorisation of the system of social constraints within which individual behaviour ordinarily takes place.
- b A systematic development of standardised overt action opportunities may be necessary before an individual can be accurately classified on a positive - negative continuum concerning a particular attitude object.

Kelman (1974) takes the view that attitude is not an index of action but a determinant, component and consequent of it. 'ATTITUDE AND ACTION ARE LINKED IN A CONTINUING RECIPROCAL PROCESS, EACH GENERATING THE OTHER IN AN ENDLESS CHAIN. ACTION IS THE GROUND ON WHICH ATTITUDES ARE FORMED, TESTED, MODIFIED AND ABANDONED'.

Kelman agrees that a person's attitudes toward a particular object are formed in the course of his interaction with that object, or his interaction with other persons or, with communication media transmitting information about the object.

It has already been suggested that attitudes are studied so that by a process of influencing attitudes, behaviour patterns can be changed. A study of the literature shows that behaviour cannot necessarily be predicted by reference to observed attitudes. What is important is to determine how respondents arrive at the attitude they possess, whether by personal involvement and experience or as a result of indirect involvement with others in their peer group.

Kelman's view of dynamic, reciprocal process between attitude and action, implies that attitude formation and change is a continually ongoing process. Attitudes develop out of the person's interaction with an object in a particular motivational and cognitive context. In principle, attitudes should be developing and changing whenever a person is exposed to new experiences and information. In practice, changes are usually quite slow and gradual because attitudes, once

established help to shape the experience the person has with the attitude object.

Conflicting forces face the person involved in interactions. On the one hand new information produces forces toward change while the existing attitude creates forces toward stability. Kelman argues that attitude change processes are most likely to be got into motion if the person is sharply confronted with a discrepancy between his attitude and some item of new information. The discrepant information must be sufficiently strong and challenging to overcome the competing forces toward stability and even then, there are many ways of neutralising the discrepancy short of attitude change.

This principle of discrepant action, or action that is out of keeping with a person's attitude toward an object, being the significant vehicle for change of attitude needs some further consideration.

Kelman's theory is that attitude change in relation to discrepant action is not always an entirely reactive process but may well be an active one in which action plays a catalytic role. He proposes that any given attitude represents a range of commitment to the attitude object, the attitude representing a range rather than just a point on a scale. A person's behaviour vis-a-vis the attitude object fluctuating around a modal point so that in some situations he may display a level of commitment closer to the upper end of his range; in others, a level closer to the lower end. The degree of readiness to shift away to a higher or lower level would depend

upon a variety of factors but it is reasonably easy to see from this theory how an action can simultaneously flow from an attitude and mediate changes in that attitude.

What has been suggested is that a simple attitude - behaviour relationship cannot be assumed. More knowledge of the experiences undergone by persons involved in attitude surveys is needed in order that a realistic prediction of behaviour patterns can be attempted. Furthermore, the discrepant action theory throws some light on the ways in which attitude changes come about.

It is not the intention, indeed within the scope of this thesis, to test the various theories outlined above, but it suffices to know the limitations of the use of attitude surveys in predicting likely behaviour patterns, and to take these limitations into account in drawing any conclusions from the research.

Nevertheless, bearing in mind what has been discussed above it was thought desirable and necessary to measure the attitudes of the workforce and to this end questionnaires were devised, firstly to assess employee attitudes to various statements and secondly to attempt to measure their attitude change over time, then independently to seek evidence to suggest reasons for any change.

The main objectives of an attitude survey of this type could be therefore summarised as follows:

- i How has the Company safety performance changed during the period of study?
- ii If there has been a change, what is this due to?
- iii What contribution have safety representatives made over the last few years?
- iv What other groups have made an important contribution to accident prevention and safe working practices?
- v What type of relationships exist in the Company and is the climate conducive to change?

The First Questionnaire (1977)

For the purposes of simplicity in constructing the questionnaire, it was decided to adopt a Likert-type scale as the basis.

A large pool of attitude statements relating to health and safety matters in the Company was constructed with a number of statements being included twice, in a slightly different form, and others being reversed, to check reliability and consistency.

It was decided to use seven response categories to give respondents sufficient choice when considering the statements, the possible responses ranged from "Strongly Agree" to "Strongly Disagree".

Each response choice was given a score, for example "Strongly Agree" was allocated 7 points, "Strongly Disagree" 1 point and "Uncertain" 4 points being the middle of the response categories.

The statements were so constructed that a "Strongly Agree" response indicated a positive safety attitude on the part of the respondent, for example 'I GENERALLY ACCEPT HEALTH AND SAFETY PROPOSALS THAT ARE PUT FORWARD BY THE COMPANY'.

Where statements did not fall into the pattern of indicating positive safety attitudes, the maximum score was given to statements where the respondent "Strongly Agreed" that he understood the safety arrangement described by the statement ie, 'THE WORK DONE BY THE SAFETY COMMITTEE IS WELL KNOWN TO ME', or where he agreed with what the Company was advocating in its safety programme ie, 'THERE IS A GENUINE DESIRE BY THE MANAGEMENT TO MAKE THE WORKPLACE SAFER'.

Where statements were reversed, scores were reversed also, although no indication of this appeared on the questionnaire form. The questionnaire presented to employees listed 36 statements, they being the ones selected by the researcher as being the most relevant to the study in February 1977.

In determining who should answer the questionnaire it was necessary to select a representative sample of the workforce, in terms of age, length of service and occupation. It was also thought advisable to involve a large sample of the population, at least 10% if possible, consequently an independent

member of the Personnel Department was asked to identify who should be selected, bearing in mind the sample size and the representative requirements already outlined.

A final sample of 11.5% of the hourly paid workforce was selected, it being decided that because of the completely different safety requirements for staff and shop floor workers, on this occasion staff employees should not be included in the survey.

Respondents were brought together into a meeting room, in groups of approximately ten at a time and told that the Company was investigating the effect of the recent health and safety legislation on safety performance and that their views and opinions were being sought. In order to make it simple to carry out such an exercise, a questionnaire had been devised and they were required merely to tick the response column which most accurately described their attitude to the statement.

It was explained that the questionnaire was completely confidential and anonymous, their name would not appear on the document, and no association with individuals could be made once the questionnaire was completed. Furthermore, no-one was being coerced to take part, the Company was merely giving them an opportunity to express their views, anyone not wishing to take part could leave the room without any recrimination taking place afterwards.

Because the shop stewards had been thoroughly briefed before the exercise took place, there was no problem experienced by employees refusing to take part, in fact, when they were invited to leave if they did not wish to take part, no employee took up this option.

Many of the respondents were personally known to me and a degree of socialising and banter took place both prior to and after each session. The majority of respondents expressed the view that they were eager to co-operate and would respond carefully to the written statements.

Results of the 1977 Questionnaire

Ten out of the eighty five respondents returned spoiled papers and a high percentage of these were seen to be those immigrant employees who did not appear to understand what was required of them. On speaking to individuals who sat looking blank whilst others completed the sheets, it was found that a number of immigrant employees could not read or understand the questions properly.

Appendix 12 shows the number and pattern of responses to each statement on the various response columns.

A summary of these results is as follows:

- i Employees thought the Health and Safety Committee was carrying out an important role and did a good job in promoting Health and Safety. (Statements 1,2 and 3).

- ii With regard to representation, employees thought that their union representative took care of their health and safety requirements rather better than did their supervisor. (Statements 9 and 12).

- iii Employees also thought that the Company was genuinely attempting to make the workplace safer (Statement 19) and that people concerned with health and safety in the Company were competent to do their job. (Statement 18).

- iv Respondents believed that the unions, safety law and the factory inspector had an important part to play in making the workplace safer. (Statements 20, 21 and 22).

- v Individuals believed that they could themselves contribute towards maintaining a safe place of work (Statements 24 and 25) and that they have a responsibility to report hazards. (Statement 32).

- vi They also believed that they should get more involved in discussion and participation on health and safety matters and that more safety training would be useful. (Statements 35, 38 and 39).

Internal Validity of Results

- i The responses appeared to be genuine in as much as check statements were answered as expected.

For example: Statement 28 'THIS COMPANY'S SAFETY RECORD IS GOOD COMPARED WITH THAT OF OTHER COMPANIES'.

35 out of the 75 respondents were uncertain, which is to be expected because most respondents would not be able to make comparisons. Of the remaining 41 replies, 23 were in the response columns each side of "Uncertain" which indicates that respondents did not feel strongly enough to record their mark in the extreme columns.

Suggestions were made, after the questionnaire had been completed, that columns 5 and 6 and 2 and 3 were the wrong way round.

ii Another example is statement 29, 'I AM ENCOURAGED TO HAVE MEDICAL TREATMENT EVEN FOR MINOR INJURIES'.

Only 4 respondents disagreed in any way with this statement which confirmed a very positive company policy which encourages employees to report to the Surgery.

iii Statement 4, 'THE SAFETY COMMITTEE NEEDS TO CONCERN ITSELF MORE WITH WHAT EMPLOYEES WANT RATHER THAN WHAT THE COMPANY POLICY IS', and Statement 5, 'THE SAFETY COMMITTEE IS NOT IN TOUCH WITH THE NEEDS AND REQUIREMENTS OF EMPLOYEES', are very similar.

The responses to the statements were also similar, which would have been expected, except that rather more respondents (25) strongly disagreed with statement 4, than the (9) who strongly disagreed with statement 5.

The inference here is that whilst the response pattern to the two statements was similar, more employees felt strongly that they disagreed with statement 4, and that the Safety Committee was right to concern itself with Company policy on health and safety matters.

Other points from the 1977 Questionnaire

- i There appeared to be little justification for including response columns 2 and 6 which required "partial agreement" and "partial disagreement". This caused some confusion for respondents.

- ii A problem arose as a result of the inclusion of immigrant workers in the sample and it was decided not to include them in future, even though the sample would not then be truly representative of the total population in respect to nationality. They were excluded because of their lack of understanding of the questions.

- iii There were 40 statements in the 1977 questionnaire.
 - a A number of the statements were similar ie:

Statement 4 'THE SAFETY COMMITTEE NEEDS TO CONCERN ITSELF MORE WITH WHAT EMPLOYEES WANT RATHER THAN COMPANY POLICY'.

and

Statement 5 'THE SAFETY COMMITTEE IS NOT IN TOUCH WITH THE NEEDS AND REQUIREMENTS OF EMPLOYEES'.

Statement 25 'I AM AWARE OF THE NEED FOR PROTECTIVE CLOTHING AND EQUIPMENT IN MY OCCUPATION'.

and

Statement 33 'I HAVE NO RESPONSIBILITY UNDER THE LAW TO WEAR PROTECTIVE CLOTHING OR USE PROTECTIVE EQUIPMENT'.

b A number of statements were not designed properly to elicit meaningful answers ie:

Statement 37 'THERE ARE FAR MORE IMPORTANT THINGS TO WORRY ABOUT IN THIS FACTORY THAN SAFETY'.

This statement can always encourage individuals to agree because to individuals this is likely to be the case. What was intended was that the statement should indicate the level of priority attached to health and safety.

Statement 24 'I SHOULD BE LEFT TO DO MY JOB WITHOUT PEOPLE TELLING ME OF THE NECESSARY SAFETY PRECAUTIONS'.

The inference from the question is that employees should not be given any instructions or guidance. What was intended was that individuals should take care of their own health and safety necessities without being constantly informed.

c The questionnaire was too long in that respondents appeared, from observation, to lose interest on or around the third page.

d A number of statements were too loosely related to the subject of the implementation of the 1974 Act and the effect of the Safety Representatives eg:

Statement 15 'MORE MONEY NEEDS TO BE SPENT TO MAKE THE FACTORY A SAFER PLACE IN WHICH TO WORK'.

e Some statements which were relevant at the time the original pool of statements were devised became irrelevant, after the first questionnaire eg: Statement 36 'I CAN WIN AN AWARD FOR MAKING A SAFETY SUGGESTION'.

Because of the various reasons outlined above, it was decided to reduce the number of statements in the next questionnaire, and also reduce the number of response columns from seven to five.

iv No attempt was made to compare responses between workers from different departments.

v The technique of scoring the various responses and arriving at an average to indicate whether it was a positive or negative response was not found to be successful. In arriving at an average score, it is possible to get completely different response patterns

which give the same average score and this does not indicate accurately how statement response patterns changed over time.

Because of this, it was decided to modify the technique on the next questionnaire, which was planned for October 1978, by adopting in its place, the percentage of respondents either agreeing or disagreeing and comparing the different responses over time rather than comparing average response scores.

The Second Questionnaire (1978)

Due to recruitment of new labour since the previous questionnaire there was a different length of service pattern between the groups of respondents to the two questionnaires. Details are given in Table 3.

TABLE 3 RELATIONSHIP BETWEEN NUMBER OF RESPONDENTS AND LENGTH OF SERVICE

<u>Length of Service</u>	Questionnaire Date			
	<u>February 1977</u>		<u>October 1978</u>	
	<u>Number</u>	<u>%</u>	<u>Number</u>	<u>%</u>
Under 1 year	4	4.7	9	18.8
1 - 5 years	16	18.8	17	35.4
Over 5 years	<u>65</u>	<u>76.5</u>	<u>22</u>	<u>45.8</u>
TOTAL	85	100%	48	100%

Forty eight respondents answered the questionnaire, they being completely representative of the population (total

hourly paid workforce) in terms of age, length of service and occupation but not representative in terms of nationality. The sample represented 5.5% of the total population on this occasion.

Results of the 1978 Questionnaire

Appendix 13 shows the questionnaire and responses to each statement, and when grouping them under the main headings, the following points emerged:

i Safety committee

68% of the respondents knew of the work of the Safety Committee, 66% thought it did a good job and 60% thought it was in touch with the needs and requirements of employees, 23% did not know of its work, 19% did not believe it did a good job and 27% thought it was out of touch.

ii Company health and safety policy

79% thought health and safety matters were well publicised, 89% generally accepted company safety proposals, whilst 95% were encouraged to have treatment in the Surgery.

53% thought all possible steps were being taken to protect employees' health, 47% thought the Company representatives were competent and 82% thought there was a genuine desire by management to make the workplace safer.

With regard to who encourages the Company to pursue safe working practices, 76% thought it was because of the Factory Inspector, 57% because of trade union pressure and 88% because of factory safety law.

iii Representation

55% thought the safety representatives looked after their health and safety requirements and 57% thought their supervisor did, whilst 31% did not believe their supervisor looked after their safety requirements and 30% thought the same about their safety representatives although 60% knew who their safety representative was.

52% thought safety representatives put the views of employees to the Company quite adequately.

iv Employees themselves

43% thought employees were not concerned about following Company safe working practices whilst 50% felt they were.

97% wished to put their point of view more often and 83% would like to have more information about accidents in their department.

v Company safety performance

39% believed the Company's safety record was good compared with others whilst 45% were uncertain.

45% believed the Company was a safe place in which to work whilst 46% did not.

vi Group contributions to health and safety

When asked to rank in order of importance the three employee groups who contributed most to health and safety, the results showed:

- First - safety representatives
- Second - fire and safety officers
- Third - factory inspectors

Management were considered the group who least contributed to health and safety.

One of the possible reasons for a response of this kind is that respondents at some time during the week came into contact with either their safety representative or the fire and safety officer, they therefore see them as contributing most.

Management, particularly senior management, do not have the same physical contact and therefore are not seen to be contributing much, with other groups such as shop stewards and supervisors coming somewhere inbetween.

With regard to the factory inspector, the same argument cannot be used because his contact with employees is irregular and infrequent.

It might be just this infrequency of contact that leads employees to believe the factory inspector has more influence on the organisation than in fact he has, in other words a passive exercise of power. The 1978 questionnaire results revealed that 76% of the respondents believe the Company pursues safe working practices because of the Inspectorate and informal discussion with shop floor employees reveals that the factory inspector is held in awe by many of them.

McKenna (1975, 1978) during research into the effects of first aid training on workers' injury accidents, asked a number of questions about attitudes towards accidents. Workers were asked to rank five parties according to the responsibility each had for preventing him (the interviewee) from having an accident. The order produced by about 80 workers was: (1) worker himself, (2) fellow workers, (3) supervision, (4) management, and (5) trade unions.

Glendon (1979) in discussing these findings, hypothesised that the worker has both consistent and logical beliefs about the prevention of accidental injury to himself. To extend this area of research he put questions on responsibility for both accident prevention and safety to managers and supervisors and achieved similar results from both groups, namely that the worker himself was responsible for accident prevention but management and supervision were largely responsible for safety. Trade unions and factory inspectors were low down the

order with both groups who do not see these parties as having an important direct responsibility for either accident prevention or safety.

A small sample of safety representatives questioned by Glendon did not perceive any difference between responsibility for safety and accident prevention and they ranked the worker and the trade union higher than other parties.

Both McKenna and Glendon were seeking to determine the views of various parties on responsibility for accident prevention and safety whereas the questionnaires in this thesis seek to determine who in the opinion of shop floor workers at Metro-Cammell, contribute most to safety in the Company.

The questions posed are somewhat different, consequently one might expect a different response pattern from that found by the previous researchers because the person or persons who have responsibility for a task might not be the ones who actually contribute the most.

Comparison between the 1977 and 1978 survey results

When considering the responses in 1977 and 1978 the following main points are noted:

- i Health and safety matters were not considered to be publicised as well in 1978 as in 1977.
- ii Safety representatives looked after health and safety requirements more satisfactorily in 1978 than in 1977.
- iii In 1978 a higher percentage of respondents believed the Company's safety record was good compared with other companies than in 1977. In 1978 after a high intake of new labour, respondents were possibly more qualified to respond to this statement, no doubt making comparisons with their previous place of employment.
- iv In 1978 a higher percentage than in 1977 believed the Company was a safe place in which to work.
- v Also when comparing 1978 with 1977, a very much higher percentage believed the Company employed competent people to deal with health and safety matters.
- vi Finally in 1978 more respondents believed that trade union pressure caused the Company to pursue safe working policies but fewer believed that safety law encouraged management to do this. This suggests that the Health and Safety at Work Act in general terms had not had a great effect on the attitudes of employees, although this thesis argues that it had considerable effect upon management and safety representatives.

Attempts will be made to explain these findings after considering the results of the 1979 questionnaire.

The Third Questionnaire (1979)

During 1979 a third questionnaire was devised and answered by 55 respondents in July of that year, this sample being 4.6% of the total population.

The number of response columns was again reduced, this time to three - agree, uncertain and disagree - because there was no evidence from the previous questionnaire that more than three response categories were necessary, and some respondents had stated that the questionnaire should be kept as simple as possible.

Bearing the need for simplicity in mind, and in order to keep the questionnaire short and to the point, certain statements were again omitted in the light of comments made by respondents following the earlier questionnaires. Some of the statements appeared to have less relevance to the study in 1979 than when they were first devised, for example, the statement dealing with which groups caused the Company to treat health and safety matters seriously.

Furthermore, new statements dealing with the influence of safety representatives were thought to be more relevant in 1979 after the safety representatives had had time to establish themselves in the organisation structure, consequently these further statements were added:

l 'THE LAST YEAR HAS SEEN AN IMPROVEMENT IN ACCIDENT PREVENTION ARRANGEMENTS'.

m 'THE SAFETY REPRESENTATIVE IS LARGELY RESPONSIBLE FOR THESE IMPROVEMENTS'. (This assumes that the answer to l is yes).

n 'I AM MORE CONSCIOUS OF THE IMPORTANCE OF SAFE WORKING THAN I WAS 12 MONTHS AGO'. (This is admittedly a difficult statement to respond to because it requires a serious value judgement to be made by the respondent about his own position).

o 'THE SAFETY REPRESENTATIVE HAS BEEN LARGELY RESPONSIBLE FOR MAKING THE FACTORY SAFER'.

In addition, respondents were asked to rank from 1 - 8, in order of importance, the groups who, in their opinion, contributed most to safety in the Company.

One further refinement was built into this third questionnaire and that was response boxes for age and length of service. This was not merely to check representativeness but also to check if any particular age or length of service group replied to the statements in a particular manner.

The representativeness of the sample in terms of age and length of service is illustrated in Tables 4 and 5.

TABLE 4 Representativeness of sample with respect to age

		AGE				
		years	years	years	years	years
		<u>16-20</u>	<u>21-30</u>	<u>31-40</u>	<u>41-50</u>	<u>51-65</u>
Company	) Numbers	131	328	283	197	261
Distribution)	Percentage	10.9%	27.3%	23.6%	16.4%	21.8%
Sample	) Numbers	3	15	13	9	15
Distribution)	Percentage	5.5%	26.2%	24.5%	17.0%	27.3%

TABLE 5 Representativeness of sample with respect to length of service

		Length of Service		
		<u>Under 1 yr</u>	<u>1 - 5 yrs</u>	<u>Over 5 yrs</u>
Company	) Numbers	240	458	502
Distribution)	Percentage	20%	38.2%	41.8%
Sample	) Numbers	12	21	22
Distribution)	Percentage	19.6%	39.6%	40.8%

It can be seen that the sample is broadly representative of the total population in terms of age and length of service.

Appendix 14 shows the response to statements in the 1979 questionnaire whilst Appendix 15 * shows the comparison in responses between February 1977, October 1978 and July 1979.

* (All responses are expressed in percentage terms).

Comparison of 1979 results with results of previous two surveys

Statement a)

In 1979 only 53% of respondents were fully familiar with the work of the Safety Committee. A comparison shows that over time there was a gradual reduction in the percentage of employees who are aware of the work of the Safety Committee.

It is probably true that the Committee publicised its affairs less in 1979 than in 1977 and with the large increase in new labour it could well be that its work was generally less well

known. In fact the results show that 15% of the 1979 respondents who did not know of the work of the Safety Committee had less than one year's service at the time of the survey while 27% who did know of its work had more than five year's service.

Statement b)

Again in 1979 only 53% believed the Safety Committee did a good job in providing and recommending conditions conducive to health and safety but 35% were uncertain. Of those who believed the Safety Committee were doing a good job, 29% had over 5 year's service. More respondents were uncertain whether the committee did a good job than on previous occasions.

Statement c)

Only 40% believed in 1979 that safety representatives looked after their health and safety requirements whilst 33% were uncertain. Of those who believed they were well represented, 50% had over 5 year's service, the other 50% were almost equally divided between those with under 1 year's service and those with 1 - 5 year's service.

It is possible that those with longer service knew their safety representatives rather better than did new employees and therefore believed they represented their interests better.

Statement d)

In 1979 more respondents than previously were uncertain whether they accepted Company health and safety proposals although those who disagreed remained at 4 - 5%. Nevertheless, 75% generally accepted Company proposals which must be considered a high percentage when taking into account new employees who came from a wide variety of other organisations.

A number of possible reasons for this response come to mind, namely:

- i Employees are generally apathetic and accept Company proposals.
- ii Company proposals are sensible and obvious and therefore likely to be accepted by employees.
- iii A healthy industrial relations climate encourages employees to accept health and safety proposals because they were drawn up with the co-operation and consent of the employee safety representatives.

There is no firm evidence to support either anyone of these possibilities taken in isolation; it is probably true that all three factors have a bearing on the attitudes of employees in this matter. However, it may be possible to draw other conclusions based on the response to further statements.

Statement e)

58% were uncertain whether the Company's safety record was good compared with other companies and 31% believed it compared favourably.

Here again we find fewer employees agreeing with the statement than previously but the response did vary considerably over the study period rising from 39% in 1977 to 48% in 1978 falling to 31% in 1979.

Respondents must have had great difficulty with this statement because they had no quantitative data with which to make comparisons. One would therefore expect them to be uncertain in their responses which is precisely what happened.

Statement f)

Here again, the great majority (89%) of respondents agreed that they were encouraged to have medical treatment, even for minor injuries.

A very good relationship exists between employees and the Surgery, where medical as distinct from accident treatments, are given freely and personal and social problems are also discussed.

New employees on their initial induction course meet the Surgery Sister who informs them of the services that are available.

Statement g)

42% of the respondents replied that they occasionally discussed problems with their safety representative. This compares with 56% in the 1978 survey.

40% did not have any discussions and perhaps this is to be expected because many employees are apathetic or do not believe there are any safety problems in their particular area.

Statement h)

51% believed that safety representatives put employees' views to the Company quite frequently and 35% were uncertain. Whilst the percentage of those uncertain is fairly high, there was a gradual reduction in those who disagreed, from 23% in 1977 to 14% in 1979.

The inference here is that there is general agreement that the safety representatives are representing the interests of their members quite adequately.

Statement i)

There has been a change in attitude over time to the statement that all that is possible is being done to protect employees' health whilst at work.

Those in agreement dropped from 53% in 1977 to 36% in 1979, whilst those uncertain increased from 15% to 26% and those in disagreement increased from 32% to 38%.

There are a number of possible reasons for this response:

- i The Company was less active in 1979 than in previous years in health and safety matters

There is evidence elsewhere in this thesis to indicate that the Company was continuing to show an active interest and involvement in health and safety by increased expenditure and by the formulation and implementation of more safety procedures (see Chapters 7 & 8).

However, in the section dealing with the work of the Health and Safety Committee it was pointed out that publicity and communications from the Committee appeared to have either reduced or at least not increased at the same pace as other health and safety activities such as the introduction of new safety procedures. It is possible that this apparent reduction in publicity from the committee lead a number of employees to believe the Company was less active in health and safety matters.;

As employees became more familiar with accident prevention matters they saw the need for more to be done

With the current emphasis on health and safety matters across industry, it is possible that employees were more aware of what was needed and this awareness created some dissatisfaction.

As national and domestic interest was raised by discussion on health and safety matters, employees became more

more familiar with what was happening in many areas. This could have led them to then compare their situation with others around. For example, publicity on noise induced deafness or cancer due to asbestos could have set them examining their own environment and questioning whether adequate precautions were being taken.

iii Employees' expectations change

As more and more resources such as time and money were spent on health and safety, and as employees became involved more closely with safety policy, their expectations were likely to change and grow to the extent that they required a little more to be accomplished.

As safety representatives on the Safety Committee realised that the Company was prepared to accept their recommendations to bring about improved safety procedures, and invest in capital equipment such as guards on machines or new overhead cranes to replace older ones, they believed that they were having an impact and this encouraged them to go even further in requesting other changes.

iv If the statement is interpreted strictly, all that is possible is not being done

If a respondent wished to interpret the statement strictly, he would probably have to disagree with it, and a better statement might have included the expression "all that is reasonably practicable", but even this

is open to interpretation in a similar manner to the original statement.

Whatever the reason, a majority of respondents do not believe that everything possible was being done to protect their health whilst at work.

Statement j)

A majority (58%) did believe that management had a genuine desire to make the workplace safer, although again the percentage was lower, resulting in an increase in those who were not certain. Those in disagreement amounted to only 9%.

It will be recalled that the great majority of respondents also accept Company health and safety policies and this could indicate a unitary attitude on behalf of employees, or could be described as an example of the Sophisticated Paternalistic Pattern of Management Union relationships, as described by Fox (1974).

It could also fit a high trust relationship pattern also described by Fox (1974) where employees basically exhibit trust in their employer to look after their health and safety needs by employing managers who have a genuine desire to make the workplace safer.

Statement k)

Equal numbers either knew who their safety representative was or did not know, only 11% being uncertain. This is a change

from the 1978 survey when 60% knew and 22% did not, with 18% being uncertain.

One difficulty that employees could face is the fact that although all safety representatives are shop stewards, not all shop stewards are safety representatives, therefore occasionally a representative from another trade group or geographical area might not be as well known to employees as is their own steward.

Statement l)

This statement was only included in the 1979 survey and asked respondents to compare accident prevention arrangements with those in existence 12 months previously.

40% of the respondents believed there had been an improvement during the period, whilst 13% thought there had been no improvement and 47% were uncertain.

19.6% of the sample had less than 12 months service and would be expected to be uncertain in response to the statement. In fact, of these with less than one year's service 55% did mark the uncertain column, 36% were in agreement and only 9% thought there had been no improvement.

Statement m)

When asked if they believed the safety representative to be largely responsible for these improvements, 42% agreed and 46% were uncertain.

In attempting to correlate this statement with statement g), it was discovered that 69% of those respondents who thought the safety representative had been largely responsible for the change also occasionally discussed problems with their safety representative, in other words 16 of the 23 respondents who agreed with statement g) also agreed with statement m).

This suggests that those employees who knew their representative well enough to discuss safety matters, believed the representatives had a positive effect upon accident prevention arrangements.

Statement n)

82% of respondents believed that in July 1979 they were more conscious of the importance of safe working than 12 months previously.

Table 6 shows the length of service distribution of those who agreed with the statement and the length of service distribution of the total sample.

Table 6 Relationship between length of service and response to statement m)

	<u>Under 1 yr</u>	<u>1 - 5 yrs</u>	<u>Over 5 yrs</u>
Length of Service of Total Sample	19.6%	39.6%	40.8%
Length of Service of those in agreement with statement m)	17%	36%	47%

The indications here are that those with over 5 year's service are more aware of the importance of safe working than the other two groups, because, of those who agreed with the statement, there was a greater proportion of the longer service group than if the response had been representative of the total sample.

It is perhaps to be expected that those with under 1 year's service would have difficulty with this statement, therefore it would not be realistic to draw firm conclusions from this length of service comparison.

Statement o)

This statement attempted to determine whether employees thought the safety representative had been largely responsible for making the factory safer. 47% believed this to be the case, 38% were uncertain and only 15% disagreed.

There is a strong relationship between this statement and statement m) which refers to the safety representative being largely responsible for accident prevention improvement.

Of those who thought the safety representative had been largely responsible for making the workplace safer, 65% also thought the representative was largely responsible for accident prevention improvements.

Contributions to health and safety

Table 7 shows how respondents ranked the various groups from 1 - 8 in order of their importance.

Table 7 Contribution to health and safety by various groups of employees

Group	Ranked order as marked by respondents on questionnaire								Ranked Order
	1st	2nd	3rd	4th	5th	6th	7th	8th	
Fire & Safety Officers	11	10	5	9	5	2	-	-	1
Safety Representatives	9	9	11	2	2	6	2	-	2
Shop Stewards	8	5	8	11	4	2	3	-	3
Factory Inspectors	8	4	2	9	7	5	7	-	4
Employees	4	6	7	1	8	5	9	-	5
Management	1	2	4	4	6	8	8	5	6
Supervisors	-	4	4	5	8	10	7	4	7
Others	-	1	-	-	-	3	5	32	8

It can be seen from the table that only 41 of the total sample of 55 responded to the statement, presumably the ones that did not respond either could not understand what was expected of them or could not be bothered to work out a ranking order.

Of those who gave an opinion, eleven ranked the Fire and Safety Officers as contributing most, nine gave that distinction to the safety representatives, while eight gave it to shop stewards and another eight to the Factory Inspector.

If 8 points were awarded for each first place, 7 points for each second place and so on, the total points awarded would be as indicated in Table 8.

Table 8 Contributions to health and safety by various groups of employees - (comparison between two ranking methods)

<u>Group</u>	<u>Number of first places</u>	<u>Ranked Order</u>	<u>Points</u>	<u>Ranked Order</u>
Fire & Safety Officers	11	1	259	1
Safety Representatives	9	2	241	2
Shop Stewards	8	3	230	3
Factory Inspector	8	3	201	4
Employees	4	5	186	5
Management	1	6	135	7
Supervisors	-	7	157	6
Others	-	7	58	8

When ranking groups in order of the contribution they make, both from the number of points awarded and the number of first places attained, the Fire and Safety Officers came at the top of the ranking order, closely followed by the safety representatives.

According to the respondents, foremen and management are not thought to contribute much.

At the time of the second survey in 1978, the safety representatives were thought to contribute most, so there has been some change here.

Further comments on the survey results

Before attempting to draw conclusions from the results of these employee attitude questionnaires, it is necessary to remind ourselves of the aims of this section and the relevance of attitude surveys and their effect on behavioural patterns.

Aims

- i How has the Company safety performance changed during the period of study in the opinion of employees?
- ii If employees believe there has been a change, what is this due to?
- iii What do they believe the contribution of the safety representative has been over the last few years?
- iv What other groups have made an important contribution to accident prevention and safe working practices?
- v What type of relationship exists in the Company and is the climate conducive to change?

i How has the Company safety performance changed during the period of study

There is more than a suggestion that in the view of employees the safety performance was rather worse in 1979 than in 1977 and this can be illustrated as follows:

a A smaller percentage of respondents in 1979 believed everything possible was being done to protect their health and fewer believed that management had a genuine desire to make the workplace safer. Also a smaller percentage were inclined to accept Company health and safety proposals and the same trend is found when attempting to compare the Company's safety record with that of other employers.

b In all of these cases there is an increase in the percentage who were uncertain about things, but no significant increase in those who actually believed the statement to be incorrect. However, the influx of new labour tends to confuse the situation because new labour is more likely to be uncertain when asked to compare situations over time.

c Fewer employees believed the Safety Committee was doing a good job and here again there is a trend for more respondents to be uncertain.

There is certainly no overwhelming evidence to suggest that employees believed the Company safety performance to have appreciably improved.

ii If there has been a change, what is this due to?

There are a number of possible reasons why employees believe there may have been a decrease in safety performance:

- a With less publicity emanating from the Safety Committee perhaps employees believe the Committee to be less effective and relate this directly to safety performance.
- b As employees become more aware of accident prevention arrangements and more familiar with health and safety matters in general, they may see the need for even more to be done, a kind of "snowball" effect. As explained earlier this could lead to their expectations changing.
- c The influx of new labour over the period has caused a certain disturbance in the population which makes it more difficult to assess changes in attitude.

Whilst attempts have been made in this analysis to separate the views of certain groups, an attempt has not been made to measure the indirect effect that new employees have on the attitude and behaviour pattern of original population and vice-versa.

d With the emergence of safety representatives, who have been trained on Trades Union Congress sponsored courses, this has brought a whole new dimension into consideration and it might well be that some of their views have "rubbed off" on other employees, and this has increased any dissatisfaction that may previously have lain relatively dormant.

iii What contribution has the safety representative made over the last few years?

The majority of respondents discussed safety matters with their representative and believe he puts their views to the Company quite adequately.

Almost half (42%) of the respondents believe the safety representative is largely responsible for improvements in accident prevention arrangements, and rather more (47%) believe he has been largely responsible for making the factory safer.

Whilst there is a high percentage of respondents who are uncertain in these matters, the strong indications are that the safety representatives are believed to make a real contribution, more so than Factory Inspectors, managers and supervisors.

iv What other groups have made an important contribution to accident prevention and safe working practices?

Without doubt, the Fire and Safety Officer and his assistant - who seem not to be thought of as part of

management, although they are staff employees with some authority - are seen to make a significant contribution.

They are ranked as the most important group, even ahead of the safety representatives, and are seen as far more important than management and supervision in respect of their contribution to health and safety.

Respondents also believe that safety law and the trade union movement motivate management to provide safer working conditions.

v What type of relationship exists in the Company and is the climate conducive to change?

The great majority of employees generally accept Company health and safety proposals, believe that management personnel are competent and believe management has a genuine desire to make the workplace safer. They are almost unanimous in agreeing that they are encouraged to attend for medical treatment and in accepting the need to wear protective clothing and use protective equipment and devices.

If we are to go no further in trying to describe relationships within the Company, it would appear that employees hold a unitary perspective, accepting management's philosophy on health and safety matters.

However, when other factors, such as the establishment of joint health and safety disputes procedures, the

jointly attended Health and Safety Committee, the acceptance by the Company of shop stewards as safety representatives, the 100% membership of shop floor employees in unions, it can be seen that a Pluralistic approach is more likely to be closer to reality.

It has already been suggested in the chapter dealing with "Patterns of Management and Organisational Style" that Fox's Sophisticated Modern or Standard Modern Pattern describe the Metro-Cammell relationship and from the evidence of the attitude questionnaire it appears that there is a healthy climate in which to pursue further accident prevention arrangements.

In the 1977 questionnaire, there was a strong indication that employees wished to be consulted more and have more knowledge about hazards and accidents in their department.

Attitude - behaviour patterns

It was suggested earlier in this section that:

- a behaviour cannot necessarily be predicted by reference to observed attitudes, what is important is to determine how respondents arrive at the attitudes, for behaviour is more likely to mirror attitude if the attitude has been formed by close personal involvement with the attitude object. (Kelman 1974).

b. Attitude formation and change is a continually ongoing process.

c. More knowledge of the experiences undergone by respondents which lead to them forming their attitudes is necessary in order that a realistic prediction of behaviour patterns can be attempted.

In attempting to determine the validity of the conclusions reached in the last few pages, it is necessary to consider the efficacy of the attitude survey results and their likely meaning for predicting behaviour.

It could be said that in an organisation employing about one thousand shop floor workers, day to day contact with safety representatives, managers and supervisors should be fairly good in that employees are close enough to these individuals to closely observe how they perform their tasks. Employees also are generally aware of happenings in other departments which are not geographically separated by long distances.

In forming attitudes about plant health and safety matters, employees could therefore be said to be in such close personal contact with the attitude object that according to Kelman, their behaviour pattern resulting from attitude measurement should be reasonably predictable.

Certainly there is tremendous difference between attitudes formed in this way and those for example formed in relation

to who would be the best Prime Minister, merely on the evidence of reading the newspapers and watching television broadcasts. In this latter case, the individual can only form his attitude based on the opinion of others and his view of the personalities involved observed from a great distance, not by day to day contact.

It is suggested therefore, that the Metro-Cammell attitude surveys can be used to predict the likely behaviour of employees to a realistic extent, bearing in mind that attitude formation and change is in a constant state of flux and therefore attitudes need to be checked at frequent intervals in order to determine whether or not the safety programme being followed is in sympathy with the views expressed by employees.

Conclusions

On the results of the questionnaire there is no clear evidence that employees believe there has been a positive improvement in safety performance during the years 1976 to 1979, but employees do believe that safety representatives make a real contribution in health and safety matters, far more so than managers, supervisors or factory inspectors. Employees believe that the Fire and Safety Officer makes the greater contribution and that safety legislation and the trade union movement motivate management to provide safer working conditions.

There is further evidence to show that Pluralistic attitudes exist and there are no indications to suggest that if the Company pursued a more vigorous programme with management and supervision playing leading roles, employees would not follow this lead. On the contrary, there is evidence to suggest that the relationships within the Company are conducive to change and that a more extensive health and safety programme would get the support of the safety representatives and the majority of employees.

CHAPTER 7

EXPENDITURE ON HEALTH & SAFETY

One way of making a quantitative assessment of the factors that are likely to affect health and safety performance is to examine how the cost of maintaining and improving the working environment changed over time.

It was assumed that if individuals within the organisation were devoting more attention to health and safety matters in order to improve performance and adherence to new legislation, then expenditures on new plant and equipment and on consumable safety items such as eye protection, protective clothing and safety training, would increase. There were two main elements of expenditure taken into consideration. First, day to day overhead costs relating to consumable items such as safety seminar fees, consultancy fees and time devoted to safety meetings. Second, expenditures relating to purchase of plant and equipment which were additions to company assets, namely revenue and capital expenditures.

There was no readily available information in either of these areas, therefore, for the purpose of this research new information retrieval systems were set up at the beginning of 1976.

1 Overhead expenditure

In order to segregate health and safety overhead expenditures from all other overhead expenditures new expense codes were introduced itemising the various areas where expenditure could occur. This was done by listing separately the various aspects of health and safety expenditure which had previously been booked under a single expense code as "Health and Safety". Spare expense codes were provided by the Accounts department and a list of the new codes, together with their description was issued to management, supervisors and clerical staff.

They were asked to ensure that the new codes were used as appropriate when booking health and safety overhead expenditures. A typical list of codes and expenditure areas is shown in Appendix 16.

Information was received in the spring of 1977 regarding the amounts booked on the various expense codes during the year ending 31 December 1976. Unfortunately, further information about subsequent years was not examined until early 1980, when it was observed, with much horror, that overhead expenditures had actually fallen according to the information collected, when from personal knowledge and experience this was known not to be the case in practice.

It became obvious that because the procedures for booking health and safety overheads had not been closely

monitored the necessary data had been irretrievably lost because the accounting system could not be used to differentiate the necessary data from the mass of information it stored.

Subsequent investigations into the cause of system breakdown led to the following conclusions:

- a Expenditures were booked to the incorrect expense codes by clerical staff at shop floor level. For example, costs of "safety meetings" were booked to "other meetings" and safety consumable items were booked to codes relating to other consumables.
- b Some clerical staff admitted they were ignorant of safety expense codes having either lost the appropriate list or forgotten that new codes had been introduced.
- c Accounts staff when comparing the actual expenditure with the budgeted expenditures had not drawn attention to the fact that budgeted expenditures were never exceeded, in fact, in most cases never approached.
- d Lack of attention to this particular aspect of the research meant that none of the overhead cost information could be used because it was completely worthless. Consequently it was decided that as it

was impossible to draw any firm conclusions from the data because of its complete unreliability, it would not be published or discussed in this thesis.

Certain lessons can be drawn from this experience, namely:

- i Data collection should be continually monitored so that any apparent discrepancies can be immediately investigated and be corrected or confirmed.
- ii Explicit instructions must be given to participants or those expected to collect data, otherwise confusion is likely to result leading to a loss of data.
- iii The researcher needs to be constantly diligent in all aspects of the work and not expect others to have the same interest or enthusiasm as himself.

2 Capital and revenue expenditures

It was decided early in 1976 to modify the rules relating to requests for special funds. The usual procedure was for the initiator to complete the form, illustrated in Appendix 17, in as much detail as possible, attaching more than one quote where applicable and then obtain approvals by senior management indicated in the boxes at

the bottom of the form. However, from 1976 all persons originating applications for special funds (ASF's) were required to state whether or not there was a health and safety aspect associated with the request and if so, they were asked to estimate what percentage of the total expenditure was necessary for purely health and safety reasons.

A portion of the application form was set aside for this purpose and a memorandum went out from the General Manager to all departmental managers asking them to adhere to the new procedure. A copy of this memorandum is attached as Appendix 18. A modification was made in 1978/79 whereby the Fire and Safety Officer received all ASF's with a health and safety content and he was charged with estimating the applicable percentage in order to introduce the common element. Otherwise, it was possible that originators would emphasise the health and safety element if they thought it would assist the application to be approved. In defence of the original scheme, the General Manager always examined carefully the percentage and if he thought there was any doubt he would return it to the originator for reconsideration. A copy of the modified application form as used in 1980 is attached as Appendix 19.

Appendix 20 shows all the capital and revenue expenditures incurred during 1979 and is intended to illustrate the type of expenditures which were approved during the

period, together with the estimated percentage health and safety content.

It will be noted that many of the items on the list, particularly those with 100% health and safety content such as 1364 Toilet Facilities and 0356 Benches and Clothes Lockers, could be classified as welfare items.

In initially determining which items should be included, it was decided to include all those with a health and safety content and these would include welfare matters. After all the 1974 Act which has a strong bearing upon all matters contained in this research is an act '..... FOR SECURING THE HEALTH, SAFETY AND WELFARE OF PERSONS AT WORK'.

Often it is not possible to put a finite value on the health and safety content and it would have been preferable if the researcher had estimated the percentage, but this was not possible without being closely involved with all the detail. Nevertheless, by using these estimates indications can be obtained regarding the trend of expenditures over the period.

Analysis of data

Analysis of the data over the period 1976 to 1979 inclusive, produced the following summary of approved ASF's and the related expenditures and there is clear evidence of the increase in both of these over the period.

It should be noted that expenditures are in index form, 100 being the total expenditure for 1976. Furthermore, to take into account inflation, the Retail Price Index (RPI) for each year has been included for comparison purposes.

TABLE 9

Applications for special funds (1976 - 1979 inclusive)

<u>YEAR</u>	<u>1976</u>	<u>1977</u>	<u>1978</u>	<u>1979</u>
Number of ASF's	15	20	58	76
%age change since 1976	-	33.3%	286.7%	406.7%
Expenditure (1976=100)	100	165.5	263.6	363.7
%age change since 1976	-	65.5%	163.6%	263.7%
RPI (December each year)	168	188.4	204.2	239.4
%age change since Dec 1976	-	12.14%	21.55%	42.5%

The table clearly shows that whilst the RPI increased by 42.5% from December 1976 to December 1979, there was an increase of 263.7% in the level of expenditures and a 406.7% increase in the number of expenditures.

1978, the year of the introduction of the Safety Committee and Safety Representative Regulations showed a massive increase in the number of capital/revenue expenditures, expenditure also increasing by an equally impressive amount. This trend continued through 1979, an increase which cannot be attributed to inflation alone.

It has already been mentioned that 1978/79 were years of expansion within the organisation and it is therefore understandable that expenditures increased over the period. The factory buildings and plant were very old, (some of the original buildings dating back to the early part of the century), and partial refurbishment and replacement at times of expansion are not unusual. Furthermore, employees expect, and get, better facilities now than a few years ago and this has the effect of pushing up expenditure.

However plausible the above factors may be in explaining the increase in capital/revenue expenditure, further examination shows that during 1979, about 30% (23 ASF's) of all expenditures either came about due to the direct suggesting/actions of safety representatives or were actively discussed with safety representatives before the ASF's submitted.

A good example is ASF 1661 "Speed Restriction Ramps (works car parks)". This topic was brought up by safety representatives at the Health and Safety Committee meeting where it was fully discussed, plans drawn up and approved, and recommendations submitted to the company for capital authorisation.

The point being made here is that although health and safety, along with other expenditures would be expected to increase during the 1978/79 period of expansion and

increased output, the actual increase is higher than would have been expected for the growth factor alone. It is also suggested that as a number of authorisations in 1979, which had the involvement of safety representatives, was greater than the total number of all health and safety expenditures in 1976, the safety representatives had not only established their position in the organisation, but had actively pursued and encouraged the Company to spend more on improving health and safety arrangements within the works.

What of course is not known is the extent of expenditures if the company had been contracting rather than expanding. The coincidence of growth and the introduction of new health and safety legislation led to an increase in expenditure but possibly this would not have occurred if output and hence profitability had been less.

A further degree of caution should be exercised when examining the increase in health and safety spending. As individuals recognised that senior management were sympathetic to encouraging safer working practices and thus more likely to approve capital/revenue expenditures if there is a significant health and safety risk that must be overcome, those requesting funds are more likely to include a health and safety factor in the justification that has to accompany each application. Whilst no quantitative assessment has been made as to the extent of

this practice, the Fire and Safety Officer and others have made comments to the effect that health and safety aspects which were never previously recognised as such are now being included as an inducement for senior management to approve expenditure.

The evidence presented here suggests, but does not prove, that the awareness of new safety legislation and the introduction of safety representatives has had the effect of increasing health and safety expenditures in the company, but whether this would have been the case in a period of financial stringency, is not known.

CHAPTER 8

SPECIFIC CASE STUDIES - 'THE CHANGING SITUATION'

In order to show how the emphasis in the Company during the 1970s has shifted toward more consideration of health and safety matters, a number of representative examples of health and safety activity have been selected as case studies, on the basis that they attempt to demonstrate how safety practices have changed over time and indicate some of the reasons why. Other examples could have been chosen but the ones selected are thought to illustrate the point as well as any.

The particular hypothesis being tested in this research is that the introduction of safety representatives has led to health and safety matters being treated with more concern and attention than previously. This section will attempt to demonstrate that this has been the case.

i ELECTRICAL TESTING OF ROLLING STOCK

Before rolling stock leaves the Company, it is necessary for it to be electrically tested. The test requirements vary, depending upon the type of rolling stock. For example a London Transport tube train needs a different series of electrical tests to those applicable to a diesel powered shunting locomotive. Although the tests on different types of rolling stock differ, some testing always needs to take place.

In the case of London Transport underground stock, it could be said that the testing requirements have remained basically similar over the last decade, varying only in accordance with specification requirements as laid down by the customer. It is convenient therefore to use this as an example of how safety precautions associated with electrical testing of London Transport vehicles have changed, although the testing requirements as described in the vehicle specifications have largely remained unaltered.

In testing both electrical circuitry and the operation of electrical equipment, it is necessary on occasions for high voltage supplies up to 1500 volts DC to be used. There is therefore a need to take stringent safety precautions to protect both those employees associated with the testing and others likely to be in the vicinity of the test for various reasons.

Appendices 21 & 22 show typical safety precautions taken during the early 1970s; these in fact relate to the testing of Northern Line cars in 1972. At the same time a 'sanction to test' permit was issued by the Electrical Engineering Department once all ancillary employees had removed themselves from the vehicle to be tested. The authorised tester was an employee of GEC/AEI, the company which was sub-contracted to wire and test the vehicles. The tester had total responsibility for testing and also for those persons employed to carry out the

tests. Furthermore, he had the responsibility for any Metro-Cammell personnel who might be authorised to be in the vicinity. Production supervisors were requested to conform with the procedure and not allow their personnel to enter the prescribed test area, this being fenced off with white tape and distinguished by warning notices. It was intended that by identifying the area and by displaying warning notices, unauthorised personnel would keep away. At all times it was accepted that GEC/AEI employees were experts, being fully conversant with the hazards of the job and able to work on vehicles whilst an electrical supply was connected.

Whilst safety arrangements would have been notified to shop stewards and posted on notice boards, the advice and recommendations of the workforce would not have been sought before bringing out regulations of this type. It was quite clearly recognised that management made the necessary arrangements and expected supervisors and shop floor workers to comply with them and although to my knowledge serious disciplinary action was not taken there was always the possibility of this occurring in the case of any person ignoring the procedure and entering the vehicles or test areas without being authorised. During this period, output from the factory was not high, the Company going through a period of depression in common with the engineering industry in general.

However, five years later business was on the upturn and there was greater pressure on production, less space in which to produce and consequently there was more reason for other trades to be working on vehicles in the prescribed test area right up to the time testing was due to commence and even afterwards. In this setting a new prescribed test area was set up and this time a fixed barrier, rather than white tape, was erected, completely enclosing the two car unit on test.

A significant difference from earlier testing was that in 1977 procedure was drawn up and circulated by the Fire and Safety Officer rather than by the Production Director or the Industrial Relations Officer.

Furthermore, in 1977 the number of persons and trades of authorised personnel were identified in order to clearly define the persons involved. A copy of these details is indicated in Appendix 23.

As before, there was little involvement with shop stewards or workforce and no mention of the procedure appeared on the minutes of either the Safety Committee or Joint Productivity Council meetings.

A comparison of the procedures in Appendices 21 and 22, with 23 suggests that the Company was taking rather more stringent safety precautions by 1977, but unilaterally without either agreement or full co-operation from the workforce.

Appendix 22 refers to disciplinary action being taken²³ against offenders whilst Appendix 23 merely requests the co-operation of Production Supervisors. Appendix 23 states that deviation from procedure will not be tolerated but the tone of the memoranda probably reflects the personality of the individuals who issued them rather than being an accurate reflection of the attitude of management as a whole.

Appendix 24 shows a draft procedure devised in 1977 which to all intent and purpose was the method of operation (even though the procedure was never officially formalised), and it can be seen that the 'sanction to test' permit mentioned earlier is also referred to.

During 1977, the Company was formalising its safety procedures in a standard format and management were beginning to discuss these with safety representatives both in safety committee and in separate 'ad hoc' sub-committees set up for specific purposes as and when required.

As the Company continued to expand and recruit new employees the need for additional production space grew and it became obvious that the area set aside for testing would have to be used for production purposes. Consequently in late 1978 a decision was taken to erect a purpose built commissioning and test shop away from the production areas. An initial specification for this building was approved and an amount of money allocated

equipment necessary to ensure as safe a working environment as possible. At this stage of the project, members of management responsible for production, testing, maintenance, safety and industrial relations, sat down with GEC management and the hourly paid safety representatives to plan the final detail relating to safe methods of working, safety equipment and the contents of a formal safety procedure.

It became clear at that time, that there was a basic disagreement between production management and the safety representatives. The latter wanted no production work of any kind to be undertaken in the department, for this encouraged too many employees to be in the vicinity whilst testing was taking place. On the other hand, management could not see their way clear to complete all production work in other departments because of shortage of production space and severe limitations on time due to various problems affecting the important delivery programme.

After many meetings, the matter was eventually resolved by dividing the shop into two separate areas, making access to the non-test area relatively easy but restricting access to the more dangerous areas. Appendices 25 and 26 show safety procedures relating to access to the commissioning area and were finally agreed and implemented during 1980. These show quite clearly significant

differences when compared with previous safety arrangements. This evidence supports the view that there has been a marked change in the strictness of the Company testing procedures between 1970 and 1980, with the major changes taking place since 1975.

Furthermore, there has been a general acceptance by the company management that the workforce primarily through the safety representatives, should be involved in working out not only the details of safe working arrangements but also the philosophy and principles underlying these arrangements.

ii DEVISING AND IMPLEMENTING SAFETY RULES

Prior to 1976 the majority of safety rules in the Company were unwritten and informal, having largely evolved over a period of time and being known to key personnel who had worked in the plant for many years. Certain safety practices were thus understood and generally observed, but of course there were lapses when incidents occurred because employees forgot or were ignorant of what should have been done. For its part, the Safety Committee looked at accidents and safety rules in an 'ad hoc' manner as necessity dictated. Shop stewards used their power and authority, when they thought it appropriate, to influence shop floor attitudes to health and safety, even on occasions negotiating 'dirt money' for their members who were required to undertake unpleasant work where the working conditions were not acceptable to them.

However, with the advent of the Health and Safety at Work etc, Act 1974, came the need for a formal statement of Company Health and Safety Policy, backed by the formal arrangements and organisation necessary to carry out that policy.

It was my task to prepare the necessary document for approval by the Board of Directors. Consequently, in late 1975 each manager, supervisor and shop steward was issued with a loose leaf binder containing the Company Policy Statement, the arrangements and organisation for carrying out the policy and separate sections to accommodate safety procedures together with the minutes of Health and Safety Committee meetings.

As a result of this new approach to health and safety, implicit within the Act, it was thought necessary, by management and shop stewards, to formalise many of the existing safety practices that hitherto had been communicated by memoranda or handed down orally through successive working groups. Therefore, a number of draft procedures were devised and circulated to departmental managers and supervisors for comment, this being the beginning of the formalisation process.

Consequently, from 1976 onwards, a more formal approach became the norm and the full involvement of safety representatives resulted in jointly agreed procedures which in addition carried the added weight of being approved

by the Health and Safety Committee. Whilst the initial stimulus for formalising safety rules came about as a result of the 1974 Act, it quickly became accepted practice within the organisation to involve safety representatives whenever safety was discussed. By 1979 it became unthinkable for any safety procedure to be implemented without the full involvement of both the safety representatives and the safety committee.

iii ACCIDENT REPORTING

In the early 1970s, virtually all accident reporting was undertaken by the supervisors and was generally done only as a result of accidents that led to loss of time from work. This position was not completely satisfactory because investigation was not always thorough and very often took place too long after the accident for it to be completely useful. Furthermore, the facts recorded on the accident report sheet were extremely sparse and additional information was required in order for the Personnel Department to satisfactorily complete the Form F43 for the Factory Inspectorate, the Form BI 76 for the Department of Health and Social Security, and the accident report form required by the Company's employer liability insurers.

With the appointment of the Fire and Safety Officer in mid 1975, greater emphasis was placed upon accident reporting and upon the need to comprehensively report near misses and dangerous occurrences. In addition photographs and investigations were started by the Safety

Officer immediately the accident was reported to him. Supervisors were expected to complete their own record of the details on the appropriate company form (shown in Appendix 27) but the Safety Officer submitted an independent report to the Personnel Manager.

A number of problems arose due to this change of emphasis. The first related to injured parties or witnesses being questioned soon after the incident, very often in the works surgery whilst treatment was being given. The second was the complete reluctance on the part of the shop stewards to allow their members involved in any accident to make a statement on the ground that this could affect any compensation claim they might make. These problems, together with other minor ones, prevented comprehensive accident reports from being submitted. Thus, preventive action could not always be taken and the Company's insurers could not always obtain the facts of particular incidents.

This disagreement between management and shop stewards led to workers refusing to speak to the Company's insurers or even on occasions members refusing to speak to management representatives after an accident. Much heated discussion took place at this time and tempers on both sides were often short.

Early in 1977 management and unions finally sat down together in an effort to settle the question of accident

investigation and to arrive at a mutually acceptable solution, this eventually being set out in the formal safety procedure shown in Appendix 3. Once this agreement had been reached, the document was presented to the Safety Committee for endorsement and since that date the problems associated with the investigation of accidents and dangerous occurrences have been minimal.

Formal agreement on specific safety procedures such as the accident reporting example binds all parties to adhere to these procedures as closely as possible. Because the Company recognises the position and status of the safety representative and acts accordingly and the safety representatives reciprocate by recognising that the Company and its representatives have a legitimate duty to carry out certain tasks in a prescribed manner, there is little non-institutionalised conflict.

The three case studies described illustrate just some of the ways in which change has come about within the organisation during the latter half of the 1970s. In many other ways safety representatives have brought about change, some further brief examples being:

a HEALTH AND SAFETY INSPECTIONS

Since the introduction of the 1977 Regulations, safety representatives have held inspections, although not always on a regular basis. However, the staff safety representative has held them

regularly and the large majority of all requests for safety improvements submitted to management by him have been approved. The hourly paid representatives have held inspections at less frequent intervals but have always had co-operation in carrying out the inspections even though the response to requests for improvements have seldom been immediate. Hourly paid representatives have not had the same enthusiasm for carrying out these inspections on a formal basis but they have had far more day to day involvement than the staff representative and have not felt the same need for regular inspections.

Nevertheless, once the safety representatives have indicated their wishes with regard to making an inspection, the Fire and Safety Officer has agreed a convenient date and the departmental management have made the necessary arrangements without in any way questioning the right of the safety representatives to make such an inspection. Only a few years ago it would have been unthinkable that departmental management and supervision would have acted in such a way to the request.

b PREPARATION OF SAFETY TRAINING PROGRAMMES

During 1980 the Safety Training Officer, together with the shop floor Training Instructor, set about devising new safety training programmes for

indirect workers (slingers, cranedrivers, truck-drivers, loco-drivers, shunters etc).

Old training programmes were revised and updated, whilst significant periods of off the job training were included. Not only were the domestic shop stewards keen and interested to contribute to the programmes in as much as they had draft copies and were asked to comment, but the safety representatives were also given draft copies and invited to planning meetings where the programme content was discussed in detail. Only two or three years previously safety training programmes of this type would have been drawn up and implemented by management without more than the cursory involvement of shop stewards.

c CIRCULATION OF SAFETY LITERATURE

It has already been stated in the section dealing with the organisation that all safety representatives were given copies of the Company Health and Safety Policy contained within a loose leaf binder. Within this binder there is a section for copies of Health and Safety Committee minutes and another section for miscellaneous information.

Since the introduction of the 1977 Regulations management has circulated many different levels of literature to safety representatives including:

Health and safety journals

HSE bulletins

HSE newsletters

Technical data sheets from suppliers etc

Whilst copies of all types of safety literature received by management are not circulated to safety representatives, it is the Company's view that information should be easily obtainable by them. Initially it was proposed to build a health and safety library within the Personnel Department where safety representatives could obtain whatever information was available. Unfortunately, lack of space has not made this possible but there is good co-operation between management and unions with regard to the provision of safety information.

This aspect of making health and safety information available is contrary to the general management policy of not divulging information, particularly that of a financial nature. Even though there is provision within the law for the disclosure of information for collective bargaining purposes, this information is not usually made available except by specific request and even then it is limited in amount and content.

Quite clearly then, the safety representatives have made progress in the area of information disclosure, which as shop stewards they had not

previously made. This is another example of the extent to which health and safety is treated as a subject different from others within the Company, as well as being an example of the way in which safety representatives have been accepted as being integral to the organisational structure.

In this section much evidence has been presented to indicate that the introduction of recent health and safety legislation has had a marked effect upon methods of operation within the organisation and that the safety representative has established a position whereby he is able to have a direct influence on the operation of the plant in a way that would have been unthinkable say in 1970, before the introduction of the Act.

In order to attempt to explain how the safety representative was able to establish his position, a number of possible factors are considered, which can be summarised as:

i A STABLE AND LONG ESTABLISHED RELATIONSHIP EXISTED BETWEEN MANAGEMENT AND UNIONS WITHIN THE PLANT

Collective bargaining arrangements within the plant are well established and accepted by both management and unions as a means whereby relationships are maintained. The introduction of new health and safety legislation has been within the framework of a high degree of consensus by both parties and the organic nature of the organisation has allowed change to come about. It has

been accepted within the organisation that safety representatives acting in a responsible manner are able to participate in the decision making process. This pluralistic approach legitimises the position of the unions in certain areas of joint decision making because management sees the role of the safety representative conducive to its own interests as measured by stability, effective communication, the handling of change etc. Fox (1974) describes this management pattern as the 'SOPHISTICATED MODERN' and it enables change to come about without traumatic results. The traditional pattern of negotiation and consultation, with both unions and management respecting the others position, enabled the involvement of worker representatives to become the norm within the plant.

ii SAFETY IS A SUBJECT THAT INSPIRES LESS HOSTILITY BETWEEN MANAGEMENT AND UNIONS THAN OTHER SUBJECTS

Ashford (1976) identifies a number of conflicts concerning occupational health and safety.

One is the clashing of self interests which is characteristic of management labour relations on many issues. The basic conflict in self interest stems from management's desire to keep costs down and to maintain control of the workplace versus the workers' desire to gain the largest possible package of wages and benefits, job security, and control. Three characteristics of the industrial relations system in general are especially important for occupational health and safety:

- a By and large, management is responsible in both tradition and law for providing a 'safe' workplace.

- b Until the last few years health and safety were not central issues in collective bargaining. Even when health and safety were at issue, the worker was aware that improvements could only be brought about if he were willing to trade off some of his other benefits.

- c Both labour and management have difficulty in balancing the immediate costs of health and safety improvements against their possible long term benefits. Short term and known considerations usually win. This often means that actions are taken to limit injuries which are dramatic but improvements relating to health whose benefits are likely to accrue in the future, are limited.

Ashford goes on to say that in the USA the Occupational Safety and Health Act of 1970 was slowly serving to raise the consciousness of both management and labour. He believed that the mandate to comply with health and safety standards was causing management to internalise costs.

Within Metro-Cammell there is a long history of co-operation in health and safety matters. Very infrequently does the traditional grievance procedure operate in health and safety matters, disagreements largely being contained within the

plant, without the complication or involvement of external sources or agencies. The issues described by Ashford as contributing towards conflict are minimised within the Company. In the section of this thesis dealing with financial expenditure on health and safety it can be seen how the cost of actions taken to safeguard the health and safety of the workforce during the years 1976 to 1979 increased.

iii A SAFETY COMMITTEE HAD LONG BEEN IN EXISTENCE

In an organisation where little or no consultation/communication on health and safety issues had taken place, the introduction of the 1977 regulations would have required greater change to existing practices than was the case at Metro-Cammell. Even within the plant however, the previous degree of worker involvement was not great. Nevertheless the fact that there already existed a forum for discussing health and safety matters enabled further change to take place more smoothly.

iv THE SHOP STEWARDS, WHO ALSO BECAME SAFETY REPRESENTATIVES WERE ALL MODERATE, RESPONSIBLE INDIVIDUALS

One of the fears of employers, when the 1977 regulations were announced, was that they might give licence to the militant shop steward to continually disrupt the operation of the plant on health and safety grounds. The CBI opposed the compulsory introduction of participatory legislation on the grounds that voluntary arrangements

had already accomplished much and should be allowed to continue. Within the Company early fears were proved to be groundless and the responsible attitudes adopted by safety representatives, in my view, led the management to involve them more intimately in health and safety arrangements than might otherwise have been the case if they had had a disruptive influence within the plant.

v SENIOR MANAGEMENT HAD AN INTEREST IN HEALTH AND SAFETY ISSUES

The Director and General Manager, who is also the Director of Health and Safety, took an active interest in health and safety matters and set a personal example to others within the organisation, actively encouraging those who reported to him. In addition the Production Director, who is also the Chairman of the Health and Safety Committee, always erred on the side of safety in any doubtful situation. Furthermore, as Personnel Manager responsible for health and safety policies and procedures and also as Secretary of the Health and Safety Committee, I worked with the safety representatives to promote interest in safety throughout the organisation.

vi DURING THE YEARS UNDER CONSIDERATION IN THIS THESIS, THE COMPANY WAS A PROFITABLE ENTERPRISE AND THIS ENCOURAGED ENTHUSIASM

The latter half of the 1970s saw the organisation increase in size and more money became available for purchase of new plant and equipment and for improving the

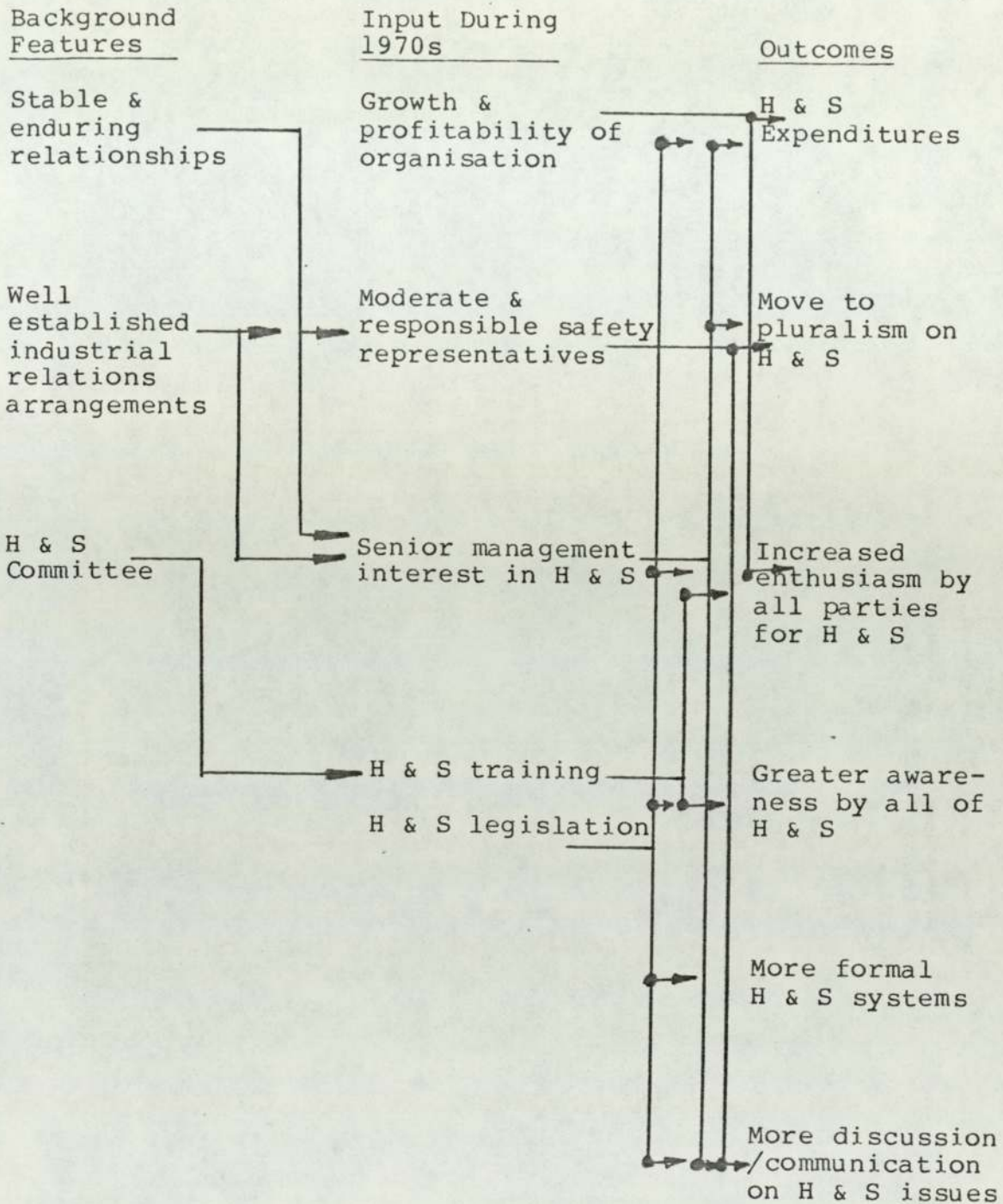
working environment. In this setting the Company was moving forward and everyone was caught up by the need for change which made it much easier to make progress in health and safety.

vii SAFETY REPRESENTATIVES AND MANAGEMENT WERE MORE AWARE OF HAZARDS AND PREVENTIVE MEASURES AS A RESULT OF ATTENDING TRAINING COURSES

As safety legislation became consolidated into existing practices within the plant more safety training took place than at any previous time during the decade and probably more than at any previous comparable period in the Company's history. Internal and external courses were attended by managers and supervisors, and safety representatives attended TUC courses. Increased knowledge led to more involvement, and although the amount of safety training was by no means sufficient to adequately cater for the needs of those involved, particularly supervisors, this training did create more awareness throughout the Company of the need to devote more thought and time to health and safety issues.

Fig 2 shows a summary of features affecting health and safety at Metro-Cammell during the 1970s, illustrating the interrelationship between the various relevant factors and how they inter-act to lead to a range of outcomes.

Fig 2 SUMMARY OF FACTORS AFFECTING HEALTH AND SAFETY AT METRO-CAMMELL 1970 - 1979



This model shows quite clearly how the long established customs and practices within the organisation were able to absorb the introduction of Company growth, new health and safety legislation and safety representatives without adverse health and safety effects. On the contrary, the resulting outcome illustrates how successful was the integration of existing practices and new developments.

CHAPTER 9

SAFETY AND THE SUPERVISOR

The importance of supervision and line management in the day to day influencing of good safety practices has long been recognised. For example, in giving evidence to the Robens Committee (1972), the Central Training Council recognised the major part played by foremen and supervisors in promoting safety.

'.....THEY (FOREMEN AND SUPERVISORS) HAVE THE CLOSEST CONTACT WITH THE MAN ON THE JOB AND MAY BE ABLE TO INFLUENCE FOR GOOD THE CONDUCT AND HABITS OF WORKING OF YOUNG PEOPLE IN THEIR CHARGE. THEY MUST NOT ONLY BE ALIVE TO THE NEED FOR SAFETY BUT ALSO UNDERSTAND HOW TO TRAIN THE EMPLOYEES UNDER THEIR SUPERVISION TO WORK SAFELY. FOREMEN AND SUPERVISORS MUST UNDERSTAND TOO THE IMPORTANCE OF MAINTAINING WORKS DISCIPLINE IN SAFETY AS IN OTHER MATTERS. THEY MUST NEVER TURN A BLIND EYE TO MALPRACTICES WHICH MAY ONE DAY LEAD TO AN ACCIDENT'.

The Robens Committee Report recognised that the supervisor was a crucial figure at shop floor level.

'.....IT IS THE SUPERVISOR WHO IS ON THE SPOT AND IN A POSITION TO KNOW WHETHER OR NOT SAFETY ARRANGEMENTS ARE WORKING IN PRACTICE. HIS INFLUENCE CAN BE DECISIVE. BOTH HERE AND ABROAD, WHEREVER WE HAVE SEEN OUTSTANDING SAFETY AND HEALTH ARRANGEMENTS IT HAS BEEN CLEAR THAT A KEY ROLE IS PLAYED BY

WELL TRAINED SUPERVISORS WHO ARE HELD ACCOUNTABLE FOR WHAT HAPPENS WITHIN THEIR SPHERE OF CONTROL. WE ARE NOT AT ALL SATISFIED THAT THIS KEY ROLE IN SAFETY IS SUFFICIENTLY RECOGNISED THROUGHOUT INDUSTRY GENERALLY, OR THAT ENOUGH IS DONE TO EQUIP SUPERVISORS FOR IT'.

It is clear from these examples that the influence of the supervisor can be critical to the Company safety performance and therefore the part played by the supervisor and the contribution he makes need investigation. However, before that is done it is necessary to consider the role of the supervisor in industry in order to assess how he copes with the challenge of change, and how he carries out his function.

In a report of a research study into the role and training of supervisors in the Iron and Steel Industry, entitled "SUPERVISION - NOW AND THEN" (1980) the researchers found there was widespread awareness of change but there was little appreciation of how these changes were affecting the supervisors job.

In data collected from 18 establishments, the following shows the most common forms of change influencing and directly affecting the supervisors work:

- | | | |
|---|----------------------|---|
| i | Technological change | Introduction of automated equipment, use of computer terminals, new instrumental and control systems. |
|---|----------------------|---|

- ii Changes in organisation systems
Manning arrangements, quality control systems the nature, variety and volume of control information, maintenance systems.
- iii Organisational changes
Management structures and relationships, policies and procedures.
- iv Changes in relationships between supervisor and manager
Managers have less contact time with supervisors. Appointment of technical specialists.

Management dealing directly with union representatives (by-passing the supervisor).
- v Changes in relationships between the supervisor and the shop floor
Erosion of pay differentials, closer supervision because of the perceived decline in the ability of new recruits. Numbers of people supervised and geographical locations.

The report concluded that supervisors could better cope with change by undertaking appropriate training organised after an identification of training needs.

Whilst it is undoubtedly true that better and more meaningful training will help the supervisor to cope, it must be recognised that in a complex organisation, the first line supervisor is the focus of much role conflict. This conflict makes it very difficult for the supervisor to be "effective" in the eyes of both his superiors and subordinates.

In an experimental study of the role conflict of first line supervisors, Simmons (1968) confirmed the hypothesis that persons evaluated most highly by a particular role partner would not be the ones to conform most to that role partner's wishes.

For the purpose of the study a role conflict occurred when a person who occupied a given status found that the various groups with which he interacted conflicted in the behaviour they expect of him. With regard to the supervisor, he is caught in the middle between supervisors who expect him to enforce organisational rules and subordinates who expect him to ignore some of the rules.

The study showed that the supervisor who was motivated to conform to management rules was only rated as average by management and was rated low by the workers in terms of ability and success in carrying out his function.

The 'MAN IN THE MIDDLE' thesis suggested by Simmons indicated that the supervisor's real conflict is with the system. For every decision he makes there is a 'WORKERS SIDE' and a 'MANAGEMENT SIDE' and regardless of which he takes he is punished by the 'SIDE' that is slighted. This implies that a supervisor is not necessarily at odds with either worker or management as such, but rather at odds with what he has to do.

Fletcher (1969) states, 'IN SIMPLE TERMS, SUPERVISORS' CONFLICT IS CONTINGENT UPON THE DEGREE TO WHICH THEIR DECISIONS ARE BUREAUCRATISED. BUREAUCRATISATION ENTAILS IMPORTANT ADDITIONAL ELEMENTS: DECISIONS ARE PROCEDURES, THEY ARE IMPERSONAL AND STANDARDISED. THE SUPERVISOR FEELS THE 'SYSTEM' AS THE COALESCENCE OF THE IMPERSONAL AND STANDARDISED PROCEDURES THAT HE MUST FOLLOW AND THE RESPONSIBILITY HE HOLDS FOR THEIR OUTCOME WITHOUT THE AUTHORITY TO ALTER THEIR COURSE'.

A study undertaken by Fletcher in a unit production factory in Merseyside in 1966 indicated that supervisors' conflict increased with their proximity to management. The closer to the executive by position or by identity then the greater the conflict.

Child (1975) in a working paper entitled "THE INDUSTRIAL SUPERVISOR" examined the changing role of the industrial supervisor over the last sixty years and described four distinct types of supervisor in regard to the identification they hold and the perspectives these generate.

- i The 'TIME SERVER' Typically this is the foreman who has been promoted after serving many years on the shop floor. His background is likely to be manual working class with no previous supervisory or managerial experience and little or no aspirations to be promoted beyond the foreman's job. Worker demands are in fact likely to be perceived as the root of his problem and he is worried about being able to cope with industrial change and about his job security.

- ii The 'SUPERCRAFTSMAN' This type of foreman shows many of the characteristics of the time server but is more likely to be associated with maintenance or skilled sections than routine production sections. His leadership will be based primarily on his expertise and specialised knowledge and he may have some aspirations for further promotion.

- iii The 'FRUSTRATED ACHIEVER' This foreman will typically have been promoted from the shop floor at quite a young age or alternatively he may have had some previous experience as a supervisor in another firm, often a smaller one. With a middle-class background he may well have ambitions one day to leave paid employment and set up on his own account. He identifies with management more strongly than with other foremen but he is frustrated because he is held back from the opportunity to satisfy his ambitions and consequently is likely to be quite critical of management policy in general and of his immediate superior's performance in particular.

iv The 'CADET' Typically a college or university undergraduate for whom a foreman's job is expected to be just the first rung of a managerial career ladder. He clearly identifies with management rather than with other foremen and while he might be quite critical of his superiors this is only likely to become deep seated if he finds his expected promotion is not forthcoming.

In small scale pilot studies, Child found that foremen either tended to identify with the shop floor and other foremen (this characterised the majority) or they identified with management but not other foremen.

Child concluded by discussing the role of the supervisor. 'THE POSITION OF SUPERVISOR VARIES IN ITS CONTENT AND IN THE WAY IT MATCHES THE PURPOSE OF THOSE WHO FILL IT. IT IS A BOUNDARY BETWEEN THE TWO TRADITIONALLY DEFINED 'SIDES OF INDUSTRY', AT A MAJOR WATERSHED IN THE CLASS SYSTEM. FOR SOME INDIVIDUALS - THE CADETS - BEING A SUPERVISOR MERELY REPRESENTS AN EXCURSION TO THE EDGES OF THE LOWER CLASS, A JOURNEY MADE BEFORE SETTLING DOWN TO A DEFINED MANAGERIAL CAREER. FOR THE FRUSTRATED ACHIEVERS IT BRINGS THEM TO A MAJOR BARRIER IN THE INDUSTRIAL HIERARCHY STILL TO BE OVERCOME. FOR OTHERS - THE TIME SERVERS AND MANY OF THE SUPERCRAFTSMEN - THE ROLE OF THE SUPERVISOR IS THE HIGHEST POINT WHICH THEY EXPECT TO ACHIEVE IN A WORKING CLASS CAREER'.

The preceding evidence goes to show how complex are the interactions between the supervisor and others with whom he comes into contact day by day and should be borne in mind in any study relating to the performance of supervisors. This factor will be dealt with again at the conclusion of the chapter.

In attempting to assess the effect of the Company safety policy on safety performance, it became necessary to consider the involvement of supervisors and line management in day to day safety matters.

INVOLVEMENT IN DAY TO DAY SAFETY MATTERS

In order to determine the involvement of supervisors in day to day safety matters a weekly safety log was designed for supervisors and line managers to record the amount of time they spent dealing with safety matters. They were also asked to differentiate between the various safety activities in which they were engaged and finally to indicate who initiated their involvement in those safety matters. A copy of the log sheet is included as Appendix 28, together with a copy of the instructions and guidance for completion sheet Appendix 29.

In view of the apparent reluctance on the part of supervisors to complete the log, (this indication was gained by discussion prior to the log being issued) it was decided to issue the log sheets on only two occasions. Furthermore, so as not to impose too great a burden onto already overworked supervisors, it was decided to limit the amount of time over which

the log needed to be kept, this time being limited to one week on each occasion. There was always the danger that this might be insufficient time in which to collect adequate information but it was thought that a good enough assessment of supervisors' health and safety activities could be obtained, particularly as the weeks to be chosen were typical, weeks, not being abnormal in respect of the anticipated health and safety involvement.

From the beginning it did appear that there was likely to be an element of bias in the responses because preliminary discussions on the subject had indicated that supervisors would be keen to show how much involvement they had and that most of the activities with which they were involved were initiated by themselves. There was also the added factor that they appeared to be keen to impress me in my capacity as Personnel Manager which might not have been the case if a completely independent researcher had set them the task.

Each supervisor and departmental manager - some 35 persons in all - were sent log sheets.

RESULTS

a October 1978

Twenty five (25) managers and supervisors including the Production Director, Personnel Officer and Surgery Sister completed and returned their log sheets and analysis of the information showed that:

- i According to the sample of managers and supervisors 62% of the health and safety activities in which they were involved came about because of their own initiatives, whilst only 9% were due to the initiative of the safety representative or shop steward.
- ii According to the respondents, they were engaged in 10 safety activities per week on average and these involved 4.5 hours per week or 11% of each person's total time. Suggested activities were indicated down the left hand side of the log sheet and described the types of possible involvement that supervisors might engage in. The number of activities per week involving supervisors ranged from a minimum of two (2) to a maximum of twenty two (22); obviously this reflects the fact that some areas because of the type of work undertaken, include a higher health and safety element. For example the Inspection foreman would not have the same or as many problems as the foreman in charge of a rail coach assembly area. He would have no crane driving and slinging problems, no great housekeeping problems or handling problems associated with building the underframes and shells of the vehicle.
- iii With regard to the type of safety activity in which they were involved, respondents stated that during the week in question, 27% of the time they spent on health and safety matters was concerned with

housekeeping, 17% of the safety time with checking the safe operation of plant and equipment and 12% in enforcing safety codes and regulations. Examples of housekeeping would be keeping gangways clear, clearing obstructions from the working area and painting white lines whilst checking the safe operation of plant could relate to the use of machine guards etc. With regard to enforcing safety regulations, adherence by operators to company safety procedures such as those relating to no smoking areas or safe use of lifting gear are possible examples.

iv Supervisors, according to their logs, only spent 1.5% of their total health and safety time dealing with accident investigation.

v According to the information received, supervisors were involved on only two occasions each week in either discussion/communication or consultation/negotiation on safety issues.

COMMENTS

From my own previous experience of managers and supervisors performing their day to day role and from feed back from safety representatives and other employees, it is my opinion that they do not initiate 62% of their health and safety activities themselves. It is extremely likely that this is an overstatement of the position and that significantly more

actions were initiated by the safety representative/shop steward than the supervisors wish to admit.

The inference from this is that the supervisor considers the safety representative to be a serious challenge to his authority and position and therefore tends to de-rate the role of the safety representative, and over-rate his own involvement.

However, when it comes to analysing the average number of safety actions undertaken by a supervisor in the course of a week, two such actions, (quoted by some supervisors) does seem too few. What this means is that only once every 2.5 days does a supervisor get involved in a health and safety matter and from my personal experience of shop floor working arrangements this does appear to be an understatement. There can be a number of possible reasons for this.

- a The safety representative was carrying out the supervisor's health and safety function and by-passing him by dealing with the employee and Safety Officer direct, without the involvement of the supervisor.
- b Supervisors had not in general terms received enough training to feel confident enough to involve themselves in health and safety matters.
- c Supervisors were not really interested or concerned enough about health and safety matters to involve themselves too often.

d Supervisors did not complete the log sheet properly. On the other hand I feel that they would have wished to have made a better impression by inserting more, rather than fewer, actions on the log sheet.

Probably all these factors contributed to the result with factors a) and c) being the principal ones.

With regard to the recorded time spent on controlling house-keeping in their areas, this is quite likely an accurate reflection of the position. As the Company expanded and became busier, during the latter period of the study, the supervisor found it necessary to spend more of his time engaged in this activity, for he was in a better position than any other member of management to determine the requirement and to control it by virtue of the fact that he is constantly on the shop floor.

Finally there is the question of time spent on accident investigation. Only 1.5% of the time they devoted to health and safety matters was spend following up accidents of some form or another in each department. Supervisors who were serious about reducing accidents and injuries would spend more time than this, because accidents occurred in most departments each week. It is suggested that the low involvement really reflects the fact that supervisors expect the Fire and Safety Officer to undertake accident investigation rather than do it themselves, and for some years they have been reluctant to complete the accident report form.

Thompson (1979) undertook to investigate the training needs of supervisors within Metro-Cammell with respect to safety and found that supervisors believed that organising their section and issuing work to operatives were more important than implementing health and safety. Only one supervisor believed that accident investigation was part of his role and only one person believed that "NEAR MISS" investigation was part of his job and even then he rated it fairly low on his list of priorities.

COMPARISON WITH SHOP FLOOR SURVEY

At the same time that supervisors were keeping their logs, the hourly paid employees were completing their 1978 attitude survey, which is dealt with in detail in chapter 6 "EMPLOYEE ATTITUDES".

Whilst 57% of the respondents in this employee survey thought their supervisor catered adequately for their health and safety requirements, supervisors were not ranked in the first three groups who made the most important contribution to safety. The point will be made later that employees do not rate the supervisor as playing such an important health and safety role as does the safety representative.

b October 1979

The same log was given to supervisors in 1979 and seventeen (17) supervisors returned their safety log.

ANALYSIS OF RESULTS

i 43% of the safety activities in which supervisors were involved came about because of their own initiatives compared with 62% a year earlier.

6.4% were as a result of safety representative initiative compared with 9% a year earlier.

10% were due to the Fire and Safety Officer's initiative.

ii Supervisors only engaged in 6.4% activities per week on average compared with 10 in 1978, and only spent 2.4 hours per week or 6% of their time on safety matters compared with 4.5 hours (11%) previously.

iii Of the time spent on health and safety matters, this was spread over the following activities:

Accident investigation	-	5% of time
Housekeeping	-	15% of time
Enforcement of safety rules	-	8.5% of time
Discussion/negotiation	-	20% of time

COMMENT

In the course of one week in October 1979, supervisors, according to their own perceptions, spent on average less time than a year previously, on safety matters, both in terms of number of hours and number of separate activities. In 1979

there was a greater spread of involvement across the various activities and the supervisors themselves initiated fewer activities, while safety representatives were perceived as being less involved in terms of initiating actions. However, the Fire and Safety Officer tended to assume more importance because of his greater involvement.

An hourly paid employee attitude survey also carried out in October 1979 asked respondents to rank in order of importance the contribution to health and safety of various groups. "SUPERVISORS" were ranked sixth out of eight groups, being ahead only of "MANAGEMENT" and "OTHERS". The lack of involvement in day to day safety matters on the shop floor shown by the supervisory logs is substantiated by the employees who do not rate the supervisor as making an important contribution to health and safety.

A number of comments can be made on the validity of the supervisor's log:

- i The data produced indicated supervisors' perceptions of their health and safety involvement and it was not systematically validated.
- ii Whilst the specific amount of time spent on health and safety matters and the actual number of involvements cannot be relied upon to be strictly accurate, because of bias or apathy on the part of the respondents, it is probably valid to assume that in general, supervisors

spend between 5% and 10% of their total working time on health and safety matters (the likelihood being that 5% is closer to reality than 10%).

- iii By similar reasoning, it is probably valid to assume that they are involved between 5 and 10 times per week in health and safety activities of one kind or another.
- iv Supervisors found difficulty in analysing their time and actions as required by the log and tended to make retrospective estimates.
- v Those who kept a daily log, as distinct from those who completed their log at the end of the week; presented a more accurate picture of the actual circumstances if they honestly recorded their involvement.
- vi Some of the supervisors did not return their log sheets. Some forgot, some were not interested and others said they were too busy, this latter comment being somewhat of a reflection of supervisory attitudes to health and safety.

Having made the point that the evidence presented so far, indicates that in the opinion of the researcher, insufficient time is devoted to health and safety matters by the supervisor, let us look at possible reasons:

i Thompson (1979) as a result of interviewing a number of supervisors, found that there were discrepancies between the requirements of Company safety policy and the features that the supervisors believed were part of their job, ie a majority of supervisors were not familiar with Company safety policy.

Authority and discipline problems and the pressures of production caused problems in implementing safety policies. Supervisors believed that they had difficulty carrying out the policy because they lacked the authority to discipline employees and because they were always under pressure to achieve production levels.

Petersen (1978) states that in most cases the supervisor's "safety hat" is worn far less often than his "production hat", or "quality hat" etc. In most organizations safety is not considered as important to supervisors as many, in fact most, of the other duties they perform.

ii When asked how much time they spent on health and safety matters, the supervisors interviewed by Thompson stated that on average they spent 5.5 hours per week or 14% of their working time.

This response conflicts somewhat with the earlier evidence from the supervisory logs which suggests that the figure is somewhere nearer 5%. Nevertheless, whichever

figure is closest to reality, it seems quite clear that supervisors are not taking a sufficiently active role in health and safety matters.

iii Thompson asked the question: "HOW IMPORTANT IS THE SAFETY REPRESENTATIVE?" to which 90% of the supervisor respondents replied that he was very important, 90% also believing that this importance was likely to grow.

30% believed that the advent of the safety representative was likely to reduce the influence of the supervisor and that training could help them to restore their authority.

30% also thought that the safety representative was the most important influence in improving Company health and safety performance, whilst 20% thought this role was played by the Fire and Safety Officer.

If one accepts Fletcher's (1969) concept that supervisors' conflict is contingent upon the degree to which their decisions are bureaucratised then supervisors are more at odds with the system than with either management or workers. Therefore it is possible that, because health and safety matters within the Company have become more formal and bureaucratised, the supervisors have not accepted them as they might if they had had the authority to cope with health and safety problems within their own discretion and without recourse to systems and procedures.

It is possible that if Metro-Cammell supervisors were 'CADETS' in the Child analysis then they might accept more readily the bureaucratised approach, but as indicated later it would not be possible to categorise them so.

SUMMARY

Certain tentative conclusions can be drawn from the evidence presented so far:

- i Supervisors are only involved in health and safety matters for something like 5 - 10% of their total working time, which during a period of intense health and safety activity in the Company seems insufficient in the sense of being 'out of phase' with other activities.
- ii Supervisors believe their own health and safety role to be less influential than the Company management would wish and that other aspects of their job are more important.
- iii It seems clear that supervisors believe the safety representative is playing an important part in improving health and safety performance and that in their view his importance and influence is likely to grow.
- iv If the Company management is serious in its desire to improve safety performance then steps need to be taken to encourage supervisory involvement to enable them to

carry out their health and safety responsibilities more effectively.

WHAT CAN BE DONE?

In studying over 2000 industrial accidents, Powell et al (1971) formed the opinion that supervisors could influence accident rates through leadership and whilst these authors had not direct measures of the effectiveness of supervision, they nevertheless gained the impression that supervisors were not really alive to the need for a constant effort to improve operator safety. They believed that supervisors could set a better example and could do more about safety if they were more knowledgeable and better trained in what to look for.

The majority of supervisors at Metro-Cammell would come into Childs' "TIME SERVER" or "SUPERCRAFTSMAN" categories, with leadership qualities being based on expertise and specialised knowledge rather than all round supervisory ability or the strong desire to achieve results for further promotion purposes.

Furthermore, they have received little or no formal off the job training and are motivated more by achieving piecework prices for the work and conforming to the production programme than by other aspects of the supervisory task.

Petersen (1978) after Lawler and Porter (1967) looks at four important aspects that motivate supervisors:

- i Advancement - Advancement seems to be the most important motivator for supervisors, considerably more so than for employees.
- ii Responsibility - Degree of responsibility is important, but less important than in the case of employees.
- iii Possibility of growth - This is far more important to supervisors than to employees.
- iv Achievement - Achievement is important to supervisors, but not as important as it is to employees.

He discusses the "effort reward probability" and argues that in assessing whether rewards really depend upon effort, the supervisor asks the following kinds of questions:

- 1 Will my effort actually bring about the required results, or are factors involved that are beyond my control?
- 2 Will I get rewarded if I achieve the goal?
- 3 Will management reward me better for achieving other goals?
- 4 Will it reward the other manager, because of seniority, regardless of my performance?

5 Is safety really that important to management, or are other areas more crucial to it right now?

6 Can management really effectively measure my performance?

7 Can I show better results in safety or some other area?

Petersen goes on to say that often supervisors decide that their personal goals would be better achieved by expending effort in other areas and too often their analysis is correct because management is rewarding other areas more than safety.

In an effort to improve supervisory motivation he then suggests the following action:

- i Make safety performance an integral and important part of supervisors' performance.
- ii Give supervisors a free hand in how they control accidents, retaining accountability for results.
- iii Assign supervisors special projects in safety.
- iv Offer better rewards for achievement in safety.

DUNKERLEY (1975) believes that greater effectiveness in achieving an effective supervisory team will be obtained if attention is directed to the needs of supervisors themselves

in other words they need to be sufficiently motivated to perform.

Both Dunkerley and Petersen point to the importance of training in achieving effective supervisory performance and certainly this is an area which has not achieved its proper degree of time and attention in the Company. All safety representatives within the Company have received 10 days training on TUC sponsored courses but not all supervisors have received a similar amount of training. If the supervisor is to take his safety responsibilities seriously, then he should be given at least the same amount of time on safety training as the safety representative and then be given the full support of management to carry out his function.

After long consideration of the apparent lack of involvement of supervisors in health and safety matters, I am inclined to believe that the basic reason is one of lack of identity on the part of the supervisor. He has internal conflict attempting to identify himself both with his own industrial background in the Company and with the view that management takes of his role. It seems that Meade and Grieg (1966) summed up the position nicely when they stated 'MANAGEMENT IS COMPELLED TO DO SOME FUNDAMENTAL THINKING ABOUT THE ROLE OF THE SUPERVISOR IN THE COMPANY, AND ABOUT THE WORKING OF THE ORGANISATION AS A WHOLE. THE SUPERVISOR BENEFITS FROM THIS BY GETTING A CLEARER IDEA OF WHERE HE FITS IN, AND A BETTER UNDERSTANDING BETWEEN HIM AND HIS SUPERIOR SHOULD BE CREATED'.

Rather than merely issue a health and safety policy and then expect supervisors to conform, expecting an improvement in health and safety performance to result, it would be better to carry out a full analysis of supervisors' needs and then design an appropriate training programme. If this were done, supervisors would be better able to recognise what was expected of them and be more able to carry out their function by having the knowledge and expertise required to satisfy the key role to which they are assigned.

CHAPTER 10

HEALTH AND SAFETY COMMITTEE - ACTIVITY

It was accepted by the Robens Committee that the establishment of joint safety committees was one way of involving workpeople in health and safety at work.

During the latter part of the 1960s there was much debate both inside Parliament and in industry in general, concerning changes in health and safety legislation. During the 1960s industrial accidents had been rising alarmingly. They had reached their highest point for a decade in 1969 and it was generally accepted that some form of joint consultation on safety could help to reduce accidents.

Following the publication in 1969 of Barbara Castle's White Paper 'IN PLACE OF STRIFE' which had aroused much animosity amongst trade unionists, there was introduced the Employed Persons (Health and Safety) Bill of 1970 which dealt in part with the setting up of safety committees where one hundred or more were employed.

These provisions in the Bill had largely come about in an effort to appease the trade unions and were contrary to the views of employers' organisations such as the CBI, which favoured the idea of voluntary safety committees, where both sides of industry jointly agreed to the setting up of such committees at their place of work. It can be seen that whilst there was some disagreement regarding how safety

committees should be constituted there was little disagreement regarding their potential value in reducing accidents at work.

In opposing the introduction of statutory safety committees Mr Dudley Smith for the Conservation opposition argued that industry would think that the Government had reneged on its promise not to introduce compulsion if progress with the voluntary system was improved. He disagreed with Mrs Castle on this and said:

'HAS THERE BEEN ANY SATISFACTORY PROGRESS? THE RIGHT HON. LADY SAYS THERE HAS NOT BEEN, BUT THE FACT IS THAT BETWEEN 1966 AND 1969 THE NUMBER OF FACTORIES WITH JOINT SAFETY COMMITTEES ROSE FROM 5826 to 9487, AN INCREASE OF 62.8%'. Dudley Smith MP. Hansard Vol. 797 col 153 March 1970.

Kochan et al (1977) report that in the USA, trades unions have historically followed a three pronged strategy for dealing with the safety and health needs of their members:

- 1 Lobbying for the passage and enforcement of State and federal legislation.
- 2 Negotiating collective bargaining provisions to protect and/or compensate workers for risks associated with hazardous jobs, and
- 3 Establishing joint union/management plant committees to monitor and improve safety and health conditions on a continuous basis.

Much the same as in the UK the labour movement is credited with being the driving force behind recent health and safety legislation in the USA, namely the Occupational Safety and Health Act 1970 (OHSA). Since 1970 safety and health provisions have expanded rapidly in collective bargaining agreements. For example, the Bureau of National Affairs reported in 1975 that 85% of the contracts included in its annual survey had some type of provisions on safety and health, compared with 65% in 1970. Likewise, between 1970 and 1975 the number of contracts providing for a joint safety and health committee increased from 31% to 39%. The rate of increase in the number of committees was even higher in manufacturing industries where the risk of injuries is the greatest.

Clegg (1970), in discussing employee participation in health and safety states:

'GENERAL CONDITIONS, SAFETY AND HEALTH ARE PERHAPS THE MOST OBVIOUS ISSUES FOR CO-OPERATION BETWEEN MANAGERS AND EMPLOYEES IN UNDERTAKINGS OF ALL KINDS, AND SEEM TO PROVIDE MUCH OF THE STAPLE BUSINESS OF JOINT CONSULTATIVE COMMITTEES WHERE THESE EXIST. A NUMBER OF FIRMS HAVE SEPARATE JOINT SAFETY COMMITTEES TO EMPHASISE THE COMMON CONCERN IN AVOIDING ACCIDENTS'.

If one accepts the proposition that a joint health and safety committee can be a potential for good in decreasing accidents at work it becomes necessary in any study of worker involvement in health and safety to include a careful examination of the work and achievements of the health and safety committee.

Metro-Cammell health and safety committee

As outlined elsewhere in this account, there has been a joint health and safety committee in existence in the Company for many years. However, as a result of the introduction of the 1974 Act it was re-constituted by agreement with the unions and safety representatives were appointed in 1976 in anticipation of the 1977 regulations. These changes took place in August 1976 and after that date safety representatives/shop stewards attended as permanent members of the committee rather than on a rota basis as had been the previous practice. Permanent attendance by management representatives was also introduced in order that continuity could be maintained and to allow for a considerable degree of health and safety expertise to be acquired by all committee participants.

In attempting to conduct a study of safety committee activity it was decided to examine the minutes of meetings over a period of years, accepting that these only recorded the substance and not all the detail of what was discussed.

Nevertheless, it was considered that all the important issues dealt with over the years would have been noted and one particularly interesting point is that as secretary of the committee during the period I provided the common denominator in as much as all such minutes were recorded by one individual, thus reducing to a minimum complicating factors such as differences in style and technique in recording events. It is possible that the fact I was undertaking the research could have led me to alter the style of minute taking because of my awareness of the relevance of the issues under discussion.

However, it only became apparent that the minutes should be analysed in this way towards the end of the study period and therefore there is little likelihood that the research had any significant effect on the style of minute taking.

Consideration of the minutes of committee meetings led to certain subject headings being chosen for examination in more detail. These subjects formed the main business of the committee over the years 1976 to 1979, and were selected because I considered that if activity relating to these matters could be quantified then this would be a guide to the importance given to them which would in turn indicate the direction of particular emphasis on health and safety matters.

1 Publicity and communication

This refers to committee discussions about either general policy towards communicating health and safety information to the workforce or about specific communication issues. For example publicity given to a particular safety campaign such as during a 'footcare' campaign or information relating to the dangers arising from high noise levels.

Feedback from various sources, including employee attitude surveys (see the section dealing with this aspect), led the committee to believe that there was not enough being done by the Company in this matter. Consequently, early in 1980 the Company appointed a full time Safety Training Officer to deal with this shortcoming. One of

his main tasks was to arrange appropriate safety training for employees and to improve the communications network. It may therefore be predicted that the number of items under this heading discussed at future meetings will increase.

2 Lost time injuries/accident analysis

Prior to 1977 this subject was not a regular one for discussion, the view being taken that it was the function of the Company to investigate and analyse accidents, they not necessarily being the subjects to be discussed in detail with workforce representatives. During 1977 this subject was highlighted, as described elsewhere, and since then appeared as a regular item on the agenda.

3 Near misses/dangerous occurrences

The comments made in 2 above equally apply to the analysis of near misses and dangerous occurrences which since 1977 have been discussed on a regular basis as they occurred.

4 Company safety procedures

It has been mentioned elsewhere in this account that a decision was taken to formalise safety arrangements and to include these in the binder given to all safety representatives and supervisors. This was quite a change in emphasis and is reflected in the number of times the matter was discussed in committee since 1977. Before any new procedure is implemented it is now fully debated before being recommended by the committee.

5 Statutory requirements/regulations

The implications of new health and safety legislation became a very important part of the agenda at meetings following the formation of the new committee. All members were very anxious to ensure that they were conversant with new and impending legislation and how it might be applied in the Company.

Since the early months of the new committee it was not found to be necessary to discuss statutory matters in as much detail as previously although it would not be possible for a whole year to pass without discussing certain aspects contained within relevant statutes. The committee minutes do not show a specific reference to legal matters where this was not the main reason for the item being discussed.

6 Eye protection/eye injuries

During 1975, eye injuries in the Company amounted to approximately 40% of all injuries reported to the works surgery. As a result of discussion in committee, much was done to publicise the dangers of not wearing eye protection and various campaigns were launched. Due to this action, plus the involvement of safety representatives, the number of eye treatments given by the surgery were more than halved and the topic has since become a regular item on the monthly agenda.

7 Hearing conservation/noise

In the early 1970s this used to be much more of a problem than later on because many of the noise problems

were solved at source. It therefore does not appear quite of often in the minutes.

8 Statistics relating to accidents

National and regional industrial accident statistics are circulated as well as quarterly and annual data relating to the domestic situation within the Company. Safety representatives are now far more aware of data of this kind than before the 1974 Act and this indicates another major shift in the Company's approach to giving information as does the provision of the accident investigation information referred to earlier.

9 Health and safety training

The comments expressed in the section relating to publicity and communication also apply here, particularly the reference to the appointment of a Safety Training Officer.

The lack of discussion in safety committee refers not so much to the fact that there was no safety training problem in the Company, but more to the fact that up until 1980 it was not considered to be a subject worthy of inclusion on the agenda.

Section 2 (2c) of the 1974 Act clearly requires the provision of adequate safety training and its omission from the agenda is, with hindsight, a shortcoming.

In addition to analysing the number of times the above subjects were discussed in committee, I thought it necessary to

make an attempt to analyse positive attempts by safety representatives to get the Company to act on specific matters as well as attempt to measure the determination of the committee as a whole in attempting to effect change. Finally, I also thought it necessary to apply a measure to how much action the committee did initiate and how the Company responded to requests and recommendations from the committee.

Consequently the following factors were considered:

a Problems identified by safety representatives and requests for action

In studying the minutes of meetings an attempt was made to pinpoint those matters which were raised by safety representatives as posing some kind of health and safety problem, and which required action on the part of the Company to investigate and eliminate.

b Action recommendations from the committee

Where the committee put forward recommendations for action, on whatever health and safety issue, these were tabulated. In this way it was possible to analyse the direct effect of the committee, over time, in arriving at a decision.

c Issues from the previous meeting, still awaiting action

This is a measure of the speed and effectiveness of the Company to investigate requests for action or to carry out corrective action. It was my opinion that as the activity of safety representatives, or the committee as a whole, increased, there could be an increasing number

Table 10

ANALYSIS OF MINUTES OF HEALTH AND SAFETY COMMITTEE MEETING
(1976 - 1979 INCLUSIVE)

<u>Category of issues discussed</u>	Year & Number of Meetings Analysed				TOTAL
	1976* (3)	1977 (11)	1978 (12)	1979 (11)	
	<u>Number of issues discussed in each category</u>				
1 Publicity and communication	3	16	8	9	36
2 Lost time injuries/accident analysis	-	5	10	12	27
3 Near misses/dangerous occurrences	-	2	8	10	20
4 Company safety procedures	3	12	13	13	41
5 Statutory requirements/regulations	6	1	-	-	7
6 Eye protection/eye injuries	4	9	13	10	36
7 Hearing conservation/noise	1	1	2	-	4
8 Statistics relating to accidents	2	9	15	11	37
9 Health and safety training	2	6	3	-	11
TOTAL	21	61	72	65	219

* New health and safety committee constituted in August 1976

of issues which were unresolved by the date of the next meeting, ie a month later.

- d Issues from the previous meeting where action was taken
Another measure of the Company effectiveness was to compare the number of issues where action was taken, on a monthly basis. This would show how quickly the Company dealt with issues which were raised by the committee and would indicate the willingness or otherwise of the Company to accept committee requests and act upon them.

Items 1 to 9 inclusive are tabulated in Table 10 whilst items a to d inclusive are tabulated in Table 11.

Results

Analysis of Table 10 shows the following:

- i There has been a change in emphasis over the period with more information being given out by management particularly that relating to accident investigation, near misses and statistical information concerned with accidents.
- ii Less time in 1979 was devoted to statutory requirements and more time devoted to domestic safety arrangements than in 1976. In assisting to devise safety procedures the safety representatives made an important contribution.
- iii Health and safety training issues received less attention in 1979 than in 1976. It has already been pointed

Table 11

ANALYSIS OF MINUTES OF HEALTH AND SAFETY COMMITTEE MEETING
(1976 - 1979 INCLUSIVE)

<u>Category of issues discussed</u>	<u>Year & Number of Meetings Analysed</u>				
	<u>1976*</u> <u>(3)</u>	<u>1977</u> <u>(11)</u>	<u>1978</u> <u>(12)</u>	<u>1979</u> <u>(11)</u>	<u>TOTAL</u>
	<u>Number of issues discussed in each category</u>				
a Problems, identified by safety reps and requests for action	2	18	21	41	82
b Action recommendations from the committee	4	11	15	30	60
c Issues from previous meeting still awaiting action	1	16	41	38	96
d Issues from previous meeting where action was taken	1	9	20	40	70
 TOTAL	 8	 54	 97	 149	 308

* New health and safety committee constituted in August 1976

out in Chapter 9 which deals with 'SAFETY AND THE SUPERVISOR' that supervisors do not receive enough formal safety training whilst in Chapter 11 the Fire and Safety Officer believes he had little or no involvement with safety training during the year of the study. It was also stated in that chapter how the recruitment of a Safety Training Officer should change the situation.

iv Apart from these comments, the type and range of issues dealt with did not vary greatly from one year to the next, nor did the number of issues within each category.

However, when analysing the action recommendations from the committee and the number of health and safety actions dealt with by the Company as a direct result of the work of the committee as tabulated in Table 11, quite a different picture emerges.

Analysis here shows:

i The number of problems or issues identified by safety representatives where action was called for increased dramatically over the period, indicating increased involvement by safety representatives.

Relationships between management and unions within the Company made it comparatively easy for safety representatives to raise countless issues under this heading; there is thus the opportunity for the number of issues raised to be considerably increased. However, personal

observations lead me to the opinion that, in the main, only issues requiring the attention of the full committee were raised, other day to day matters being raised, as appropriate, with the respective members of supervision or management as necessary. This appears to be the result of safety representatives exercising some restraint and acting in a responsible manner.

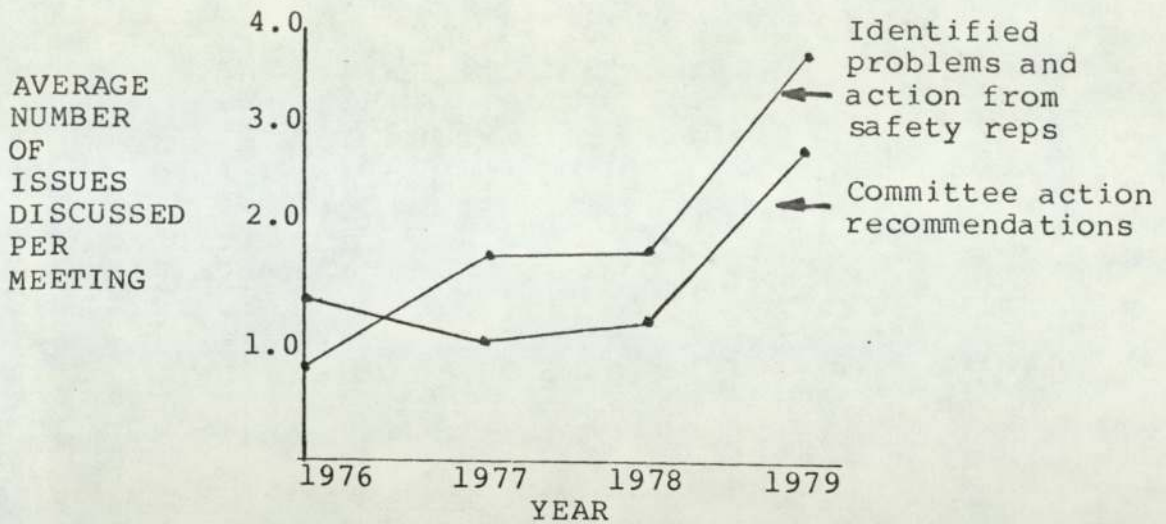
- ii Over the period there is a clear increase in the number of action recommendations being made by the committee, which suggests that as a body it became increasingly positive in its approach. The action recommendations referred to do not necessarily mean that they needed to be put to another person or persons, outside the committee, before being implemented, many of them being actioned by committee members such as the Production Director, Maintenance Manager or Personnel Manager.

It is possible to relate these action recommendations to the number of issues raised by safety representatives as they show a similar increasing trend.

Figure 3 shows the graphed relationship between action requests from safety representatives and safety committee action recommendations based on the average number of issues discussed per meeting. A similar pattern is observed and whilst it is not possible to draw firm conclusions from this evidence, there is an indication that the influence of the safety representatives has a direct bearing on the number of action recommendations emanating from the committee.

Figure 3

Relationship between action requests from safety representatives and committee action requests



iii During the years 1977 and 1978 there were approximately twice the number of issues left outstanding and requiring action as those issues where action had been taken within one month of being raised.

However, in 1979 the number of issues outstanding and those actioned were approximately the same. Over the whole of the period 1976 - 1979 the number of issues requiring action and those where action had been taken increased, which suggests either:

a Safety representatives were more effective in encouraging the Company to take action in the latter years.

or

b Management in the later period acted with more urgency in taking corrective action.

or

- c These corrective actions became easier to carry out because they involved less time, less money or because plant and equipment became more easily accessible.

There is no real evidence available to support the view that any one of these factors is responsible in itself for the position. It is more likely that a combination of factors influenced the position more than any single one.

Kochan et al. (1977) conclude that in the USA safety committees with a high degree of continuity or high levels of interaction were found where:

- i OSHA pressure was perceived to be strong.
- ii The local union itself was perceived to be strong.
- iii Rank and file involvement in safety and health issues was found to be substantial, and
- iv Management approached safety issues in a problem solving manner.

Furthermore, those committees that produced the highest number of recommendations and suggestions were found in relationships characterised by a high level of membership input, a high level of feedback to the members and a large proportion of young workers.

Summary

This important study of the work of safety committees in the USA led to certain conclusions being reached by the authors which can be supported by the work undertaken at Metro-Cammell. These general conclusions are:

- i 'MANAGEMENT BEHAVIOUR.....IS LARGELY A RESPONSE TO EXTERNAL PRESSURES FROM OSHA AND THE UNIONS. FURTHERMORE, EXTERNAL PRESSURE FROM OSHA HAS A STRONG EFFECT IN DETERRING THE USE OF NEGOTIATING TYPE RESPONSES TO UNION INFLUENCE ATTEMPTS AND IN INCLUDING ACTIVE PROBLEM SOLVING BEHAVIOUR BY MANAGEMENT'.

It has already been stated that the reconstitution of the health and Safety Committee in 1976 came about due to legislative change, as did the appointment of safety representatives in the Company. There are strong indications therefore, for supporting the view that the introduction of the 1974 Act, but more particularly the advent of the 1977 regulations, provided the stimulus to create a more urgent and dynamic response from the committee.

- ii 'THE OTHER CRITICAL DETERMINANT OF THE DEGREE OF MANAGEMENT PROBLEM SOLVING IS THE COMMITMENT OF TOP MANAGEMENT IN THE PLANT TO IMPROVING SAFETY AND HEALTH CONDITIONS. MANAGEMENT COMMITMENT AND MANAGEMENT POLICIES THAT FORM THE COMMITMENT INTO CONCRETE ACTIONS HAVE AN IMPORTANT IMPACT ON DETERRING THE UNIONS FROM USING PRESSURE OR NEGOTIATING STRATEGIES IN THE SAFETY AND HEALTH COMMITTEES; HOWEVER, ACTUAL UNION PROBLEM SOLVING IS MORE DIRECTLY A FUNCTION OF THE PRESSURE AND INVOLVEMENT OF RANK AND FILE MEMBERS'.

It has been suggested that the involvement of safety representatives also led to both the management and safety committee being more active after 1976. The willingness of management to take action to improve health and safety arrangements and the type of relationships existing in the Company between management and unions allowed for the problem solving approach rather than the negotiating style to be adopted. From my personal observations it was clear that the Metro-Cammell Safety Committee adopted a problem solving approach rather than a negotiating style and the number of occasions where agreement was not reached and where a matter was pursued outside the committee by more senior members of management or external union officials were very few, probably less than three in four years.

iii 'OUR INTERVIEWS WITH UNION REPRESENTATIVES INDICATED THAT UNIONS ONLY BECOME INVOLVED OR ACTIVE AT THE PLANT LEVEL ON SAFETY AND HEALTH ISSUES WHEN THEY PERCEIVE THE NEED TO INDUCE MANAGEMENT TO IMPROVE EXISTING CONDITIONS. WHEN THEY SEE OSHA PRESSURE PRODUCING THE DESIRED RESULTS WITHOUT UNION INVOLVEMENT THEY DO NOT TEND TO PURSUE EITHER PROBLEM SOLVING OR NEGOTIATING STRATEGIES ACTIVELY. HOWEVER, WHEN UNIONS FEEL MANAGEMENT ACTIONS ARE NOT SUFFICIENTLY RESPONSIVE, THEY ARE LIKELY TO BECOME MORE ACTIVE IN ASSERTING INFLUENCE'.

The final assertion is that the relationship between management and unions on the plant allowed for health and safety actions to be carried out with the minimum of conflict only necessary actions being discussed by the

committee. However, when pressure from the unions was seen to be necessary it was applied both inside and outside of the committee.

Kochan et. al. (1977) provide a fitting conclusion to this chapter:

'ONE OF THE MAJOR IMPLICATIONS OF THIS REPORT IS THAT WHILE THE EXISTENCE OF EXTERNAL PRESSURES ON THE PARTIES DOES SEEM TO PROVIDE THE STIMULUS FOR FORMATION OF A JOINT COMMITTEE, THE ORGANISATIONAL POLICIES OF THE UNION AND THE EMPLOYERS ARE AT LEAST AS CRITICAL IN DETERMINING THE ULTIMATE EFFECTIVENESS OF THESE JOINT EFFORTS. DEVELOPING A STRONG COMMITMENT BY TOP MANAGEMENT AND POLICIES TO IMPLEMENT THAT COMMITMENT ACTIVATING THE INTEREST AND INVOLVEMENT OF RANK AND FILE UNION MEMBERS, ASSIGNING REPRESENTATIVES TO THE JOINT EFFORT WHO HAVE ENOUGH EXPERTISE AND TIME TO CONTRIBUTE TO IT, SUFFERING THE JOINT EFFORT FROM THE POLEMICS OF THE COLLECTIVE BARGAINING PROCESS AND ULTIMATELY DEVELOPING PROBLEM SOLVING MODES OF INTERACTION ARE CRITICAL STEPS THAT HAVE TO BE ACHIEVED IF JOINT CHANGE PROGRAMMES ARE TO BE SUCCESSFUL OVER ANY EXTENDED PERIOD OF TIME'.

CHAPTER 11

THE CHANGING ROLE OF THE SAFETY OFFICER

During 1975 the Health and Safety Executive, (HSE), carried out a study into the activities of safety officers in twenty three companies and this led in 1976 to the publication of a discussion document entitled, 'SAFETY OFFICERS: SAMPLE SURVEY OR ROLE AND FUNCTIONS'.

The project was carried out with a view to helping the HSE determine a policy for safety officer training, but a number of interesting observations were made in the report which was intended to pose questions rather than to make recommendations.

The report stated: 'FOR THE FIRST TIME IN THE HISTORY OF SAFETY LEGISLATION IN THIS COUNTRY, IT IS NOW A LEGAL REQUIREMENT FOR EMPLOYERS TO PREPARE A WRITTEN STATEMENT OF THEIR GENERAL POLICY WITH RESPECT TO THE HEALTH AND SAFETY AT WORK OF THEIR EMPLOYEES. IN ADDITION, EMPLOYERS MUST PLAN THE ORGANISATION (THE PEOPLE) AND THE ARRANGEMENTS (THE PROCEDURES) BY WHICH THAT POLICY IS TO BE CARRIED OUT. THE ULTIMATE RESPONSIBILITY FOR CARRYING OUT HIS BUSINESS IN A SAFE AND HEALTHY WAY RESTS WITH THE EMPLOYER, BUT THE ORGANISATION FOR COMPLYING WITH THE SAFETY POLICY WILL DEFINE PARTICULAR DUTIES FOR PARTICULAR PERSONS.

EMPLOYERS SHOULD GIVE CAREFUL THOUGHT TO THE ROLE OF THE SAFETY OFFICER. THE VIEW HAD BEEN EXPRESSED THAT SAFETY OFFICERS SHOULD ADVISE LINE MANAGEMENT TO PROVIDE A SERVICE SIMILAR TO THAT OBTAINED FROM OTHER FUNCTIONAL MANAGEMENT'.

When one considered this latter view with respect to Metro-Cammell, it became clear that the Company Fire and Safety Officer and his assistant held key roles in the Company health and safety programme being involved to some extent in all health and safety matters. Therefore, in studying effects of change within the organisation it was necessary to study how the role of the safety officer had itself changed and how his involvement with others had also changed between 1976 and 1979.

Consequently, in 1980 at the end of the period under study, an interview took place with the Fire and Safety Officer at which he was asked to describe his main functions and illustrate how his involvement and activity relating to these functions had changed between 1976 and 1979.

He sat down for two days and analysed his work under twenty different headings:

- 1 Induction training
- 2 Accident investigation and reporting
- 3 Attendance at safety committee meetings
- 4 Monitoring protective equipment and devices
- 5 Implementing safety regulations
- 6 Analysis of new materials and substances
- 7 Involvement in safety inspections
- 8 Advising on accident prevention
- 9 Safety training
- 10 Monitoring of the workplace environment

- 11 Initiating purchase of new protective clothing and equipment
- 12 Involvement with shop floor planning layouts
- 13 Monitoring safe working practices
- 14 Liaison with external agencies
- 15 Drafting new safety procedures
- 16 Involvement with safety publicity
- 17 Liaison with supervisory and management staff
- 18 Maintenance of accident records and reports
- 19 Input with regard to capital expenditure on health and safety
- 20 Hygiene factors and pest/disease control

He was not able to determine the order of importance of these subjects because depending upon circumstances at any particular moment in time, priorities changed and certain matters assumed more importance than others. However, further information was elicited by probing in each of the above twenty areas.

1 Induction training

Induction training for new employees commenced early in 1976 and also involved members of the Personnel Department concerned with:

Terms and conditions of employment

Health and safety

Fire prevention

Medical services

Security Services

Welfare Facilities

Sports and Social Club

Initially it was very difficult to get members of supervision and management to accept that new employees should spend time on induction rather than beginning work in the department immediately they started employment. However, by the end of that year this type of training had become fully accepted because new employees spoke highly of what they had heard and the trades unions gave it their full support.

The Fire and Safety Officer includes the following information in his part of the course:

Relevant health and safety legislation

Safe working practices

Hearing conservation

Protective footwear

Protection of eyes (inc. film)

Relevant Company safety procedures

Causes of fire

Prevention of fire

Use of extinguishers

What to do in case of fire

Emergency procedures

2 Accident investigation and reporting

This function has seen a number of changes in emphasis since 1976 when the FSO produced individual reports on lost time accidents only, even then experiencing great difficulty in obtaining factual information because of

the reluctance of the Trades Unions to give any information that might prejudice any claim for industrial injury damages that they might make.

The consultative document referred to earlier also stated that at that time only a small minority of the firms investigated were concerned with both injury and near miss accidents. With respect to injury accidents, in nearly every case the point of contact with the organisation was the medical centre and in five of the firms visited the nurse was actually responsible for deciding whether investigation of an accident was warranted.

This situation in Metro-Cammell since 1977 has improved to the extent that detailed reporting of dangerous occurrences and near misses has now been included. After meetings between union representatives and management an agreed safety procedure was drawn up relating to accident reporting and this reduced the previously experienced problems as described in the chapter relating to safety procedures. By 1979, all incidents that were likely to result in lost time, were thoroughly investigated and a standard report form was designed and put into use.

The consultative document goes on to say that in most cases safety officers were aware of the fact that an accident had occurred. In the case of serious accidents

five were contacted directly, eight were informed by the line management and nine were informed by the medical centre. Eleven safety officers were informed about minor accidents by line management and in ten cases they were informed by the medical centre directly (though this sometimes involved the safety officer taking the initiative to examine the injury records).

Whilst in Metro-Cammell prior to 1976 the FSO was not always notified about accidents as they occurred, over the subsequent period, he took every opportunity to press home to the works surgery, safety representatives and employees, the need for him to be informed of all dangerous incidents that occurred, whether they resulted in injury or not. As a result of this initiative on his part he is now immediately made aware of all incidents and is able to quickly reach the scene to establish the facts.

3 Attendance at safety committee meetings

The FSO is of the opinion that the Health and Safety Committee was a more close knit and cohesive group in 1978/ 1979 than previously, with less of the 'us and them' attitude being apparent. The safety representative was able to identify himself more easily with the need to deal with health and safety matters without necessarily also acting as a shop steward and protecting his members' interests, irrespective of all other considerations. The FSO believes that this change came about because management accepted a more serious and

positive approach to health and safety matters and genuinely involved safety representatives at all times, whilst for their part the safety representatives took their new duties seriously and wanted to be involved.

Furthermore, the FSO himself became a more important member of the committee because he was formally required to be involved in all health and safety aspects and was required to give account of accidents and near misses to the committee, a task which had previously been undertaken by the Personnel Manager. In addition to this expanded role he was also required to draft detailed Company safety procedures in conjunction with the Personnel Manager.

4 Monitoring protective equipment and devices

During the four years 1976 - 1979 more and more time was taken up by the FSO on monitoring the use of such equipment as machine guards, trip devices, eye protection, foot protection and safety screens.

As the management became more concerned with new safety measures and as both management and employee representatives became more knowledgeable and aware of hazards and means of overcoming them, so the activity of the FSO increased accordingly.

5 Implementing safety regulations

The FSO is primarily an implementer of policy although he does play a part in policy formulation. In implementing Company and statutory regulations the 'policing'

role is fundamental and as both the number and complexity of regulations and Company procedures increased then he became busier and more involved. This was certainly the case over the four years 1976 - 1979 and led to the recruitment of an assistant.

Since the introduction of safety representatives into the safety structure within the Company, the FSO had an increasing involvement with them in attempting to secure the co-operation of the workforce in order to implement safety regulations.

6 Analysis of new materials and substances

Whilst the FSO had for some time checked and approved the safety precautions relevant to the use of flammable materials, the introduction of Section 6 of the Act, led to a much greater involvement with all new materials and substances. These are now checked for possible hazards and appropriate safety precautions are taken to safeguard employees, whilst the Works Doctor is often involved when further medical advice is required. Furthermore, all equipment constructed in-plant for use in the Company, such as lifting beams, tree racks for storage and other similar items, are proof tested in the engineering department and marked up accordingly before being taken into use, appropriate records being maintained and preventative maintenance arrangements being devised. Finally, the disposal of toxic waste and trade effluent are now carefully monitored by the FSO.

7 Involvement in safety inspections

Prior to the introduction of the 1977 Regulations, regular, formal safety inspections of the workplace did not take place. However, since 1978 the FSO has become increasingly involved with safety inspections. In addition to these regular formal inspections there are daily informal inspections of plant equipment and processes and as the Company has expanded leading to a greater number of employees and more plant and equipment, so the time spent by the FSO on inspections has increased accordingly.

Furthermore, whilst prior to 1976 either the Works Manager, the Personnel Manager or the Works Engineer, depending upon availability, escorted the Factory Inspectors, Local Authority Inspectors, Insurance Assessors and Consulting Engineers around the Company, it was agreed in 1976 that these arrangements would be standardised to the extent that the FSO would accompany all such visitors, with another Company representative only being included when the occasion warranted.

8 Advising on accident prevention

The involvement of the FSO in this particular activity has not changed appreciably over the period 1976 - 1979 probably because there have been few significant changes to existing systems and arrangements, whereby he is required to spend more time advising employees. One change that did in fact increase the amount of accident prevention advice, was the introduction of induction training but this has already been covered by earlier comments.

9 Safety training

The FSO has not taken too great a part in formal safety training this being mainly dealt with by the Personnel Manager. However, during 1978 the FSO did run a series of courses for crane drivers, slingers and truck drivers. With the introduction of a new Safety Training Officer in 1980 it is expected that he will have a greater involvement on a liaison basis than previously because there will be more safety training carried out.

10 Environmental Monitoring

The FSO has a regular function to monitor noise levels, dust levels, odours and smells, water contamination and the like. The most time consuming function is monitoring noise levels and regular checks of noisy areas are made with the aid of an average noise level meter whilst the noise levels associated with new processes and equipment are also closely checked.

11 Initiating purchase of new protective clothing and equipment

The FSO keeps up to date on the introduction onto the market of new types of protective clothing, substances and equipment and very often initiates initial purchase of sample items for trial purposes. Close liaison with the safety representatives and the purchasing department ensure that this function is carried out effectively.

12 Involvement in shop floor planning Layouts

Any changes to shop floor layouts, which includes the repositioning of existing plant or equipment and the

introduction of new plant, are discussed beforehand by the FSO together with departmental line management and engineering maintenance personnel.

The requirement for changed production processes or buildings used for different purposes are also discussed, not only to satisfy health and safety requirements but also to obtain fire certificates or other necessary approvals from external authorities.

The FSO invites safety representatives to any meeting where he believes they might have a contribution to make or to consult with them over any proposed changes; line management are also represented. An example of where this approach was used was in the planning of the new testing and commissioning shop referred to earlier where safety representatives were present at planning meetings prior to safety equipment being ordered.

13 Monitoring safe working practices

As well as monitoring protective equipment and devices, and regularly checking environmental conditions, the FSO also has the continuing day to day function of ensuring that all employees adopt safe working practices.

By late 1979 it had become a common practice for safety representatives to call upon the FSO to take action where they thought a working practice was either definitely not safe, or where there was an element of doubt concerning safety.

The discussion document dealing with safety officers and described earlier in debating this particular matter stated 'IT WAS FOUND THAT MOST SAFETY OFFICERS FELT THEY SHOULD HAVE ABSOLUTE AUTHORITY TO STOP PROCESSES, PROBABLY BECAUSE IN MANY CASES THEY WERE SO LOW IN THE ORGANISATION STRATA THAT IT COULD TAKE TOO LONG TO GET A DECISION THROUGH THE "USUAL CHANNELS". WHILST IT IS DEBATABLE WHETHER THE SAFETY OFFICER SHOULD STOP PROCESSES, THE FACT THAT IN MOST CASES HE MUST ACT THROUGH VARIOUS LEVELS OF MANAGEMENT SUGGESTS THAT HIS JUDGEMENT WAS NOT SUFFICIENTLY RESPECTED. THE REMEDY FOR THIS MAY BE TWOFOLD; TO IMPROVE THE STATUS OF THE SAFETY OFFICER, AND TO IMPROVE THE QUALITY OF THE ADVICE HE IS ABLE TO GIVE. ABOUT HALF THE SAFETY OFFICERS DID HAVE AUTHORITY TO STOP PROCESSES AND SEVERAL HAD DONE SO.....'.

The inference drawn from the last few words is that stopping a process is an extremely rare occurrence in industry, whereas in Metro-Cammell it happens at least once per month. The status of the FSO is recognised as is the support he gets from senior management, his decisions are therefore seen as important; even though there are often persons who disagree with them for a variety of reasons.

It could be said that the FSO is a "doer" who also advises. He has authority to stop hazardous processes and is fully recognised by employees at all levels. Whilst his status in the organisation is only comparable to that of a senior supervisor he is nevertheless able

to achieve a great deal because of his personal commitment and because of the support he receives from senior management.

It has been established within the Company that except in an emergency, a safety representative cannot and does not, stop production or prevent employees working. If he believes something to be unsafe or unhealthy he calls on the FSO who is immediately available to make that decision. If this were not the case the dividing line between withdrawing labour, "blacking", for industrial relations reasons and withdrawing labour for health and safety problems would be very indistinct and could cause untold problems. An example of a problem that did arise was when labour was withdrawn off a job where the piecework price was too low to enable average earning levels to be maintained, there was thus dissatisfaction with the price of the job but the reason given to management was that conditions on the job were "not safe". Of course this position of confusion which occurs between the real reason for withdrawing labour and the supposed health and safety reason can only arise where there is a combined role of safety representative/shop steward.

The Transport and General Workers Union Safety Representatives handbook (1978) discusses this matter as follows:

'.....IF THE REPRESENTATIVE CONSIDERS THERE IS REAL, IMMINENT DANGER TO HIS MEMBERS, UNLESS THE MATTER

IS QUICKLY RESOLVED, HE MAY WISH TO BRING IN A HEALTH AND SAFETY INSPECTOR OR AN OFFICER OF EMAS FOR HIS ADVICE. ADDITIONALLY, IF THE PROBLEM IS URGENT, HE'LL NEED A PROCEDURAL RIGHT TO CALL A HALT TO THE WORK OF THOSE OF HIS MEMBERS AFFECTED, WITH NO LOSS OF THEIR EARNINGS. (POINT OUT TO MANAGEMENT WHEN NEGOTIATING THE RIGHT TO STOP WORK THAT ALL WORKERS ARE ENTITLED TO REFUSE TO CARRY OUT DANGEROUS WORK UNDER SECTION 7) OF HASAW, WHICH PLACES A DUTY ON EVERY EMPLOYEE "WHILST AT WORK TO TAKE REASONABLE CARE OF THE HEALTH AND SAFETY OF HIMSELF AND OF OTHER PERSONS WHO MAY BE AFFECTED BY HIS ACTS". IT GOES WITHOUT SAYING THAT SUCH A RIGHT WILL BE THE MORE EFFECTIVE, THE MORE WISELY AND CIRCUMSPECTLY IT IS USED'.

Most union handbooks recommend that good procedures are formulated for dealing with this potentially difficult situation of employees stopping work because they believe a process or workplace to be unsafe, and within Metro-Cammell these procedures are adhered to and generally speaking function well. The main difficulty arises in defining what is "unsafe" or "dangerous" or "hazardous", the problem being one of degree and in "grey" areas management and safety representatives do disagree on occasions and the safety disputes procedure referred to in Chapter 3 comes into operation.

14 Liaison with external agencies

As outlined earlier, the FSO has to accompany external inspectors on their visits to the plant but he also has

to liaise with them on all associated matters.

15 Drafting new company safety procedures

The continuing need to formalise Company safety regulations and practices inevitably involves the FSO in either drafting new procedures himself for discussion at Safety Committee or commenting upon drafts prepared by others such as the Personnel Manager, Maintenance Engineer etc. No new safety procedure or regulation is introduced without the FSO being involved and domestic procedures always need his approval. It is feasible that statutory regulations might not always get his approval but these would be introduced irrespective of his views in these circumstances.

16 Involvement with safety publicity

The FSO has always been involved with safety publicity, from taking an active part in a particular safety campaign to putting notices or posters on safety notice boards. From 1980 onwards it is expected that the Safety Training Officer will take some of this work off the FSO, earlier indications are that this is infact occurring.

17 Liaison with supervisory staff

The FSO is of the opinion that he gets less co-operation now from supervisory staff than in 1976 and he has great difficulty on many occasions in getting them interested or involved in safety matters, even within their own sphere of control but he is not sure why this should be.

Chapter 9 on 'Safety and the Supervisor' works through the problems in this area and suggests some solutions but the FSO quite clearly believes that supervisors should be held more accountable for their own actions or non-actions in health and safety matters. He also believes that too often they prefer to leave the matter in his hands or pass it over to the safety representatives to deal with.

18 Maintenance of accident records

Whilst a personnel clerk is responsible for compiling accident and injury statistics from information given by surgery staff, the FSO is responsible for maintaining records of all lost time accidents, dangerous occurrences and near misses, with a further copy being kept in the Personnel Manager's office. The amount of information collected on a day to day basis and kept by the FSO is now greater than at any previous time over the four year period.

19 Input with regard to capital expenditure

As described in the chapter dealing with health and safety expenditures, the FSO is required to give his assessment of the percentage health and safety content of any request for authorisation of capital expenditure.

In 1979 the time he spent enquiring into aspects relating to this function was greater than during any of the previous three years because many of the requirements were more complex and there was an increased number of such requests.

20 Hygiene factors and pest/disease control

In the mid 1970s the FSO did not have the involvement in these matters that he had in 1979. During this earlier period a number of individuals, including the Personnel Manager, Works Engineer, Security Sergeant and works supervisors were concerned with this type of control but from 1976 onwards these matters were passed over to the FSO for him to deal with. Matters dealt with under this heading include arranging for the removal of cats, pigeons, mosquitoes, fleas, rats, mice etc, and for toilets to be cleaned by systems used by such organisations as Rentokil.

The descriptive information contained in sections 1) and 20) above is intended to show briefly changes in involvement experienced by the Fire and Safety Officer, as seen by him, during the years 1976 to 1979 inclusive.

Figure 4 is an attempt to show, in simple tabular form, this same information. It illustrates how his involvement changed from year to year with + ve scores being awarded for more involvement and - ve scores for less. No quantitative estimate has been made of the time factors involved and it is not intended that the indicated results should, in themselves, be given too much emphasis but rather indicate a

Figure 4

FUNCTIONS OF THE FIRE/SAFETY OFFICER AND CHANGES IN INVOLVEMENT
DURING THE PERIOD 1976 - 1979 INC

<u>HEALTH AND SAFETY FUNCTION</u>	Change in Involvement When Compared with Previous Year				
	YEAR				TOTAL
	1976	1977	1978	1979	
1 Induction Training	2	1	1	0	+4
2 Accident Investigation/Reporting	1	1	0	0	+2
3 Safety Committee Meetings	1	2	0	0	+3
4 Monitoring Protective Equipment and Devices	1	2	2	0	+5
5 Implementing Safety Regulations	0	1	1	1	+3
6 Analysis of Materials and Substances	0	2	1	0	+3
7 Involvement in Safety Inspections	0	0	2	2	+4
8 Advising on Accident Prevention	1	0	0	0	+1
9 Safety Training	0	0	1	-1	0
10 Environmental Monitoring	0	1	0	2	+3
11 Initiating Protective Clothing etc	1	0	0	0	+1
12 Involvement with Shop Layouts	1	1	1	1	+4
13 Monitoring Safe Working Practices	1	1	1	1	+4
14 Liaison with External Agencies	0	1	0	1	+2
15 Drafting Safety Procedures	0	1	2	2	+5
16 Safety Publicity	1	0	0	1	+2
17 Liaison with Supervisory Staff	0	-1	-1	0	-2
18 Maintenance of Accident Reports	0	1	0	1	+2
19 Input with regard to Capital Expenditure	1	0	0	1	+2
20 Hygiene and Pest/Disease Control	0	1	1	1	+3
	<u>+11</u>	<u>+15</u>	<u>+12</u>	<u>+13</u>	

CODE: 2 Much more involvement than previously
 1 More involvement
 0 No change in involvement
 -1 Less involvement than previously
 -2 Much less involvement than previously

general trend taken by the Fire and Safety Officer over the years 1976 to 1979.

Analysis of Data

Comparing the years 1976 - 1979, Figure 4 suggest that:

- a The Fire and Safety Officer was far more involved with:
 - Safety inspections
 - Planning shop layouts
 - Monitoring safe working practices
 - and Drafting safety procedures

- b On the other hand he was far less involved with:
 - Advising on accident prevention
 - Safety training
 - Initiating purchase of new protective equipment
 - and Liaising with supervisory staff

- c Over the years his involvement on safety matters showed an increasing trend.

It has been suggested more than once during this thesis that the four years 1976 to 1979 saw an increase in health and safety activity within the Company. It is therefore to be expected that the Fire and Safety Officer would have more work to do. Nevertheless, it does not necessarily follow that within the various functions of his role his involvement would expand to the extent suggested by the analysis presented.

It is my belief, based upon personal observation and discussion with the FSO that his involvement has been much greater

Figure 5

FUNCTIONS OF THE FIRE/SAFETY OFFICER AND INVOLVEMENT WITH SAFETY
REPRESENTATIVES/SHOP STEWARDS DURING THE PERIOD 1976 - 1979 INC

<u>HEALTH AND SAFETY FUNCTION</u>	Change in Involvement With Safety Representatives When Compared with Previous Year				TOTAL
	1976	1977	1978	1979	
1 Induction Training	0	0	0	0	0
2 Accident Investigation/Reporting	1	1	1	0	3
3 Safety Committee Meetings	1	1	1	0	3
4 Monitoring Protective Equipment and Devices	0	0	1	1	2
5 Implementing Safety Regulations	0	0	1	1	2
6 Analysis of Materials and Substances	0	0	0	1	1
7 Involvement in Safety Inspections	0	0	0	1	1
8 Advising on Accident Prevention	0	0	0	0	0
9 Safety Training	0	0	0	0	0
10 Environmental Monitoring	0	0	1	1	2
11 Initiating Protective Clothing etc	0	0	0	1	1
12 Involvement with Shop Layouts	0	0	0	1	1
13 Monitoring Safe Working Practices	0	0	1	1	2
14 Liaison with External Agencies	0	0	0	0	0
15 Drafting Safety Procedures	0	1	0	0	1
16 Safety Publicity	0	0	0	1	1
17 Liaison with Supervisory Staff	0	0	0	0	0
18 Maintenance of Accident Reports	0	0	0	0	0
19 Input with regard to Capital Expenditure	0	0	0	0	0
20 Hygiene and Pest/Disease Control	0	0	1	1	2
	+2	+3	+7	+10	

CODE: 2 Much more involvement with Safety Representatives
 1 More involvement with Safety Representatives
 0 No change in involvement with Safety Representatives
 -1 Less involvement with Safety Representatives
 -2 Much less involvement with Safety Representatives

during the four years than at any time previously and that this came about due to a general acceptance of the need for health and safety matters to be given rather more priority than had been the case prior to the introduction of the 1974 Act. Unfortunately an analysis of the period prior to 1976 cannot be made because health and safety minutes were not written in the same style therefore the same interpretation cannot be made as is done in this section.

Having identified suggestions that the involvement of the FSO in health and safety matters had increased during the period under study, the next thing to tackle was to investigate his involvement with safety representatives/shop stewards during the same period to determine whether there had been any change there.

Using the same health and safety functions discussed earlier in this chapter, the FSO was questioned as to the change in his involvement with safety representatives, on these issues, from one year to the next; the substance of his replies are summarised in Figure 5.

Analysis of Figure 5 indicates that:

- a In each of the years 1976 to 1979 there was greater liaison between the FSO and the safety representatives than in the previous year. This does not appear to be unreasonable in that as the involvement of the FSO increased and as the safety representatives received training and also became more involved then their joint involvement would also increase.

b The increase in involvement both when comparing 1978 with 1977 and 1979 with 1978, was greater than previously. When using the scoring technique described for Figure 5 there is a greater percentage increase in involvement toward the latter period of the study indicating that the degree of liaison between the FSO and the safety representatives was increasing.

c The greatest degree of increased involvement was in:

Accident investigation/reporting
and Attendance at safety committee meetings

These are the obvious areas for liaison between the FSO and safety representatives. With regard to accident investigation, it has been described in the Chapter 'SPECIFIC CASE STUDIES - THE CHANGING SITUATION', how trade union representatives came to co-operate with the FSO on accident reporting after a period of non-co-operation. It has also been shown that the work of the Safety Committee increased which would lead to greater involvement of both parties.

d Comparing 1979 with 1978 there was increased involvement and liaison in ten out of the twenty functions. This suggests that the FSO and safety representatives were working together on a wide range of issues.

e In seven out of the twenty functions there had been no apparent increased involvement. However, these functions were ones where safety representatives would not be expected to make a major contribution ie,

Induction training

Safety training

Liaison with external agencies

Liaison with supervisory staff

Maintenance of accident records

Input with regard to new capital expenditure

Other factors

In attempting to assess the results of this information given by the FSO, a number of important factors should be considered:

- i The information obtained relied to a large extent upon the memory of the FSO, he being asked to recollect events that occurred up to four years previously.
- ii His verbal views and opinions were translated by the Personnel Manager into the data discussed in this chapter and therefore there is the possibility that the original information may have been somewhat distorted in the translation.
- iii The information collected was subjective and was not collected in a systematic manner and thus should not be interpreted in too strict or meaningful a manner, but used rather to establish a trend or relationship.

iv The fact that the FSO was functionally responsible to the Personnel Manager could have had a bearing on the information given in that he might have given the answers that he thought the Personnel Manager wanted. However, the FSO has a very strong personality, making up his own mind on matters, and previous experience has shown that he does not do things merely to please others, even senior members of management and the chances of him changing his style on this occasion are not considered very likely.

Summary

Even taking into account all of these factors, there is enough evidence to suggest that over the period 1976 - 1979 the FSO became more involved in health and safety matters and his involvement with safety representatives, particularly during 1978 and 1979, also increased.

With regard to the involvement of safety representatives, the evidence presented here suggests that there is regular liaison between them and the FSO and that they now, to a large extent, influence his activities in a manner that would have been unthinkable during the period prior to 1977.

The FSO when asked to name the two groups who do more than any others to influence health and safety arrangements, put himself and his assistant first and safety representatives second, thus reinforcing the view that the representatives play a positive role in influencing opinion on health and safety matters. He has also accepted that they participate

with himself in determining the most suitable arrangements for those they represent, an acceptance on his part that was not present before the introduction of the 1977 Regulations when shop stewards intervened in health and safety, sometimes for reasons not entirely connected with the subject.

It could be said that the views of the FSO have changed in that prior to the introduction of the 1977 Regulations he had a unitary perspective of the role of worker representatives but this appears to have changed to a pluralistic view, accepting and even on occasions welcoming the involvement of safety representatives to improve health and safety arrangements in the Company.

CHAPTER 12

THE INFLUENCE OF THE SAFETY REPRESENTATIVES

At the beginning of this thesis it was stated that the object was to attempt to quantify the effect of the introduction of the safety representative upon the safety performance of the firm.

Various avenues have been explored in an effort to arrive at a meaningful way of quantifying this effect and the opinions of various groups have been sought. However, it would be remiss not to include the views of the safety representatives themselves in any study that was seeking to determine whether or not they undertook their functions as laid down in the 1977 regulations, and how effective their actions were.

In order to determine the views of safety representatives a schedule was designed with the intention of conducting an interview with each representative in turn and recording, by means of a cross in the appropriate box, their responses.

Appendix 30 is an example of the form itself and its design seeks to elicit, from the representatives, the following information:

'DO EMPLOYEES KNOW WHO REPRESENTS THEM?'

'DID SAFETY REPRESENTATIVES CARRY OUT THE FUNCTIONS AS LAID DOWN IN THE 1977 REGULATIONS?'

'WERE ADEQUATE FACILITIES EXTENDED TO THE REPRESENTATIVES?'

'WHAT OVERALL EFFECT DID REPRESENTATIVES HAVE?'

'WHAT WERE RELATIONSHIPS BETWEEN MANAGEMENT AND SAFETY REPRESENTATIVES LIKE?'

'WHAT WERE THE MAIN PROBLEMS PREVENTING REPRESENTATIVES FROM CARRYING OUT THEIR FUNCTIONS?'

'WHAT EFFECT DID THE 1974 ACT AND THE 1977 REGULATIONS HAVE IN INCREASING HEALTH AND SAFETY ACTIVITY?'

At the completion of the study period, all nine hourly paid safety representatives undertook to answer the questionnaire. The staff representative was not asked because he had not been a representative during the complete period in question, his predecessor having died whilst still holding the position.

Appendix 31 shows a summary of the responses, the numbers in the boxes denoting the respondents who gave that particular reply, with the exception of question 9, and here the figure is a summarisation of the rank order of importance, and question 7 where written replies needed to be given rather than response boxes marked.

RESULTS

Question 1 - Safety representatives believe that the majority of employees they represent are aware of the fact; seven representatives estimating that over 75% of employees in their area know who their safety representative is.

The 1979 employee attitude survey indicated that approximately equal numbers either knew or did not know who their representative was.

Either the representatives are overstating the position therefore or more employees knew their representative at the later date of the safety representative survey than when they were surveyed.

Question 2 - Here, the response from representatives strongly indicated that they carried out their functions as set out in the 1977 regulations. However, their contact with the Factory Inspector was limited to the senior shop stewards/safety representatives. Some of the respondents who marked the box 'sometimes' stated that they carried out their function as necessary, but not regularly.

Question 3 - Eight out of the nine respondents replied that they were regularly afforded time and facilities to carry out their function. They accepted that management never withheld facilities in an effort to prevent them carrying out their function.

Question 4 - Again eight out of the nine stated that they were completely accepted by management as being a 'bona fide' safety representative.

Question 5 - Seven respondents believed that they had had some effect upon improving health and safety arrangements in the Company, whilst one felt he had had a great deal of effect and one other very little effect. Generally representatives believed that progress in this matter would have been far less without them.

Question 6 - Representatives in general terms thought that relationships between themselves and Supervisors/Managers were good, two stating 'very good' and the majority 'good'.

Question 7 - When asked to state the main problems preventing them carrying out their function the answers varied tremendously, the main reasons being.

i The need to consider production requirements. If they carried out the function strictly to the letter they could stop production and shut the plant. The need to compromise was uppermost in their minds as was the likely effect on their members' earnings in the event of any disruption of production brought about by their actions.

ii Frustration was experienced by three representatives due to lack of management action required to improve certain health and safety arrangements.

iii Two representatives stated that they had no problems whatsoever in carrying out their function.

Question 8 - The majority of representatives believed that they contributed an equal amount to their supervisor in improving health and safety arrangements, but four believed they contributed more, whilst none believed they contributed less.

This reinforces the point made a number of times previously in this thesis that supervisors do not have the reputation for tackling health and safety matters in an enthusiastic and meaningful manner.

Question 9 - As expected, as a result of earlier responses from other groups, the Fire and Safety Officer is ranked number one amongst those who influence safe working practices the most, with safety representatives coming a close second. Surprisingly, supervisors are ranked third in the opinion of the safety representatives, with management and the Factory Inspector being in joint fourth place.

I expected supervisors to be ranked last because safety representatives in general were not thought to hold them in great esteem; perhaps they hold the other groups in even lower esteem, or maybe they just see less of them!

Question 10 - The majority of representatives believe that much progress has been made during the period of study towards improving health, safety and welfare arrangements in the Company. That is a purely subjective opinion made without recourse to statistics of safety performance or analysis of any form of related data, but merely from their own observations as experienced shop stewards/ safety representatives.

Question 11 - No representative believed that there was a great clash between the safety and shop steward roles, but a

majority thought there was sometimes a clash. This did not appear to be a major problem because the representatives were able to separate their functions when required without too much difficulty.

Question 12 - All respondents thought that the introduction of both the 1974 Act and the 1977 regulations had had some effect upon increasing health and safety activity within the Company, whilst a majority thought that the legislation had had 'very much' effect. It was clear from these responses that representatives believed that had legislation not been enacted then, the Company would not have made as much progress because there would not have been the same pressure put upon management. Without pressure of some kind, management would not act as eagerly to improve existing health and safety arrangements.

SUMMARY

The evidence suggested by this survey amongst safety representatives is:

- i During the years 1976 to 1979 inclusive, within Metro-Cammell there has been much greater activity in health and safety matters than prior to that date and this has had the effect of improving previous health and safety arrangements to a marked degree.

Furthermore, the safety representatives have taken a leading part in this improvement to a greater extent

than most other groups in the Company. The enactment of recent health and safety legislation acted as a spur to management to improve existing health and safety arrangements in a way which would have been unlikely other than as a result of the 1974 Act and consequent regulations.

ii Safety representatives were completely accepted by management and were afforded the necessary time and facilities to carry out their functions.

iii Relationships within the Company were good enough to enable the safety representatives to obtain complete acceptance by all concerned and thus enable them to contribute to improving health and safety arrangements. The clash between their respective roles as shop stewards or safety representatives was never serious enough to cause major problems.

CONCLUSIONS

In order to attempt to draw conclusions from this research study it is necessary first to reiterate the hypotheses which were derived initially:

"THE PATTERN OF MANAGEMENT AND ORGANISATIONAL ARRANGEMENTS WITHIN METRO-CAMMELL IS SYMPATHETIC TO THE INVOLVEMENT OF WORKERS IN HEALTH AND SAFETY MATTERS.

BECAUSE OF THIS AND AS A RESULT OF THE INTRODUCTION OF NEW SAFETY LEGISLATION, THE CREATION OF SAFETY REPRESENTATIVES HAS LED TO A POSITIVE IMPROVEMENT IN SAFETY PERFORMANCE.

THE IMPROVEMENT SINCE 1976 IS SHOWN BY MORE EFFECTIVE SAFETY MEASURES AND BY EMPLOYEES AT ALL LEVELS TREATING HEALTH AND SAFETY MATTERS WITH MORE CONCERN AND ATTENTION'.

There are thus four separate assumptions that need testing in order to test the hypothesis as a whole, namely:

- i The pattern of management and organisation arrangements is sympathetic to the involvement of workers in health and safety matters.
- ii There was a positive improvement in safety performance during the period under study, ie 1976 - 1979 inclusive.
- iii Health and safety matters are treated with more concern and attention within the organisation than prior to 1976.

iv The introduction of safety representatives led to conditions ii) and iii) above being satisfied.

These four assumptions will now be tested to determine their validity.

MANAGEMENT AND ORGANISATIONAL STYLE

Chapter 4 of this thesis deals with a description of various well known organisational styles and quotes a number of eminent researchers and authors.

Whilst this section did not attempt an exhaustive or completely comprehensive analysis of all the various management styles it did attempt to describe some of the better known ones which have received recognition over the years. It examined the effect of technology as outlined by Woodward; the frames of reference concept of Fox, and the same authors' trust relations approach; forms of bureaucracy particularly those set down by Gouldner and Weber; and the importance of collective bargaining in modern industrial relations. Other well known theories expounded by such as Burns and Stalker, Petersen, Argyris, Herzberg, Likert and Pilnick were explored and noted.

The analysis did not go far enough or deep enough to offer finite proof of the management style most likely to accommodate change within an organisation. Furthermore, no attempt was made to offer conclusive evidence that the Metro-Cammell organisation style was best suited to the introduction of the

new concept of the safety representative, however enough evidence was presented to suggest the following:

- * The degree of technology within the firm and the type of production arrangements were more suited than other types to the maintenance of good working relationships.
- * Generally, a pluralistic approach, which legitimises inter-group conflict, is adopted although the unitary perspective is adopted from time to time in certain circumstances. The pluralistic approach accepts that it is an advantage for the management to have the labour force as a partner rather than as a rival.
- * When considering the Fox concept of frames of reference, Metro-Cammell exhibits the sophisticated modern or standard modern pattern where management recognise that its discretion is being limited in certain areas of decision making but it legitimises these limitations and therefore does not counter with low trust behaviour and attitudes.
- * The involvement of employees and unions is legitimised by means of collective bargaining, which allows for change to be accommodated in a systematic and institutionalised way.
- * On balance, the "organic" form of management rather than the "mechanistic" is practiced within the firm and this is more appropriate to changing conditions.

POSITIVE IMPROVEMENT IN SAFETY PERFORMANCE

In Chapter 5, headed "Use of Accident Data and Statistics", an attempt was made to measure the change in safety performance of the organisation over the years 1976 - 1979 inclusive.

Various forms of measurement were applied and varying results obtained ie:

- i The All Injury Frequency Rate showed a downward trend over the period with only a slight upturn in 1978.

- iii The Major Injury Frequency Rate, Incidence Rate and Severity Rate indicated an improvement in 1977 with a turnabout in 1978, thereafter remaining steady. It is argued that rapid influx of new labour caused this turnabout.

- iii At no time during the period did the All Accident Frequency Rate ever approach the upper control limit, in fact it showed a marked trend towards approaching the lower control limit in 1979.

- v The Safe-T-Score analysis indicated that the safety performance during the period was significantly better than prior to 1976 and that something significant happened to improve the position.

A number of reasons are put forward in an attempt to explain the apparent improvement in safety performance and whilst

firm conclusions on improved performance cannot be substantiated, there is enough evidence to support the claim that there was an improvement over the period, albeit not a massive one.

In addition to this evidence, the safety representatives believe there has been an improvement and whilst this contrasts to some extent with the views of employees obtained in the employee attitude surveys, both sets of opinions are subjective and cannot be put forward as strong evidence either way.

MORE CARE AND ATTENTION GIVEN TO HEALTH AND SAFETY MATTERS

Whilst there was not overwhelming evidence to put forward regarding an improvement in safety performance, the same cannot be said of the evidence concerning the attention given to safety matters.

Earlier chapters indicate that more money was spent on health and safety than previously, the Health and Safety Committee was more active than ever before, and the Fire and Safety Officer was also more involved. Furthermore, certain specific case studies showed how the pattern of dealing with health and safety matters had changed, whilst the safety representatives believed that the advent of the 1974 Act and the 1977 Regulations had had the effect of increasing health and safety activity within the Company.

Evidence is presented throughout the preceding chapters to show that the period 1976 - 1979 was one of change with more

activity in health and safety matters on the part of all groups with the probable exception of supervisors.

It seems reasonable to assume that the introduction of new health and safety legislation had a marked effect upon the Company and the requirements of the legislation coupled with the energy and enthusiasm of the Fire and Safety Officer, who was ranked the most important influence in most surveys, led to an increase in activity.

THE INFLUENCE OF THE SAFETY REPRESENTATIVE

As well as indicating the important influence of the Fire and Safety Officer, most surveys also gave a high ranking to the safety representative.

Both the employees and supervisors recognised the important impact of the representative whilst the Fire the Safety Officer indicated by his responses that his involvement with them increased year by year during the period. The chapter dealing with the activity of the Health and Safety Committee showed how important an influence the safety representatives were and in addition there is enough evidence in the section dealing with health and safety expenditures to conclude that the introduction of safety representatives had the effect of increasing health and safety expenditures in the Company.

The examples put forward as specific case studies show how the emphasis in the Company changed as a result of safety representative influences, whilst last but by no means least

the representatives themselves believe that they have been an important influence in improving health and safety arrangements within the plant.

The evidence on this matter appears therefore to be conclusive and supports the view expressed by Geber (1978) that from October 1978 '.....THE HISTORY OF SAFETY LEGISLATION IN THIS COUNTRY TAKES A DECISIVE NEW TURN WITH THE IMPLEMENTATION OF THE SAFETY REPRESENTATIVES AND SAFETY COMMITTEES REGULATION.....THE SAFETY REPRESENTATIVES WILL BE THE MAIN AGENTS BY WHICH THE IDEALS AND OBJECTIVES OF HASWA - GREATER EMPLOYEE PARTICIPATION IN SAFETY - WILL BE REALISED'.

Simpson (1979), in addressing a meeting of the East Midlands Engineering Employers' Association said 'DURING OCTOBER 1979 THE CBI PUBLISHED A PRELIMINARY VIEW OF THE REGULATIONS IN WHICH THEY SAID "IN A NUMBER OF INDUSTRIES IT WAS FELT THAT THE AFFECT OF THE REGULATIONS HAD BEEN TO PROMOTE A MORE POSITIVE ATTITUDE TO HEALTH AND SAFETY AMONGST EMPLOYEES AND MANAGEMENT". I HAVE ALSO SEEN A SURVEY OF 162 SAFETY REPRESENTATIVES, CARRIED OUT BY DR BEAUMONT OF THE UNIVERSITY OF GLASGOW, THE LARGE MAJORITY OF WHOM FELT THAT THE UNIONS AND MANAGEMENT WERE UNITED IN BROADLY THE SAME OBJECTIVES IN HEALTH AND SAFETY MATTERS. THERE ARE OTHER ACCOUNTS WHICH REFER TO THE "DEGREE OF TRUST BUILT UP ON BOTH SIDES" AND THE RELATIVELY SMOOTH TRANSITION INTO THE NEW SAFETY REPRESENTATIVE SYSTEM'.

As described in the chapter dealing with methodology, the multi-factorial or multiple triangulation technique has been used in order to gain, at best, confirmatory evidence from the application of different methods. In examining the evidence presented in the text of the thesis it does appear that this comprehensive treatment given to various aspects has produced some confirmation of results and was probably worth undertaking.

Whilst one of the original aims was to test the hypothesis that the creation of safety representatives led to a positive improvement in safety performance, and to a large extent this has been shown to have been the case, the research has also highlighted other important influences, in particular that of the Fire and Safety Officer. Quite clearly not only has he been instrumental in implementing both the requirements of the 1974 Act as well as domestic safety policy but he has also been a support to the safety representatives and has enabled them to effect change more readily.

To return to the hypotheses it must be stated that the four main assumptions have not been conclusively tested and proven. There is strong evidence to suggest that the organisation treats health and safety matters with more concern than prior to the introduction of the 1974 Act and that the safety representatives have had a very important influence which would have been most unlikely without the requirements of the 1977 Regulations.

What is less clear is whether or not there was an improvement in safety performance during the period, this depends upon the measures being used which sometimes appear to contradict each other. The results are also complicated by the input of a large number of recruits which tends to make the conditions unstable and the measurement less easy to quantify.

With regard to the organisational style, there appears to be enough evidence to show that, by reference to accepted management theories and the views of employees and safety representatives, it is easily able to accommodate change and therefore allowed for the introduction of safety representatives without trauma, and enabled the representatives to make a positive impact upon health and safety arrangements.

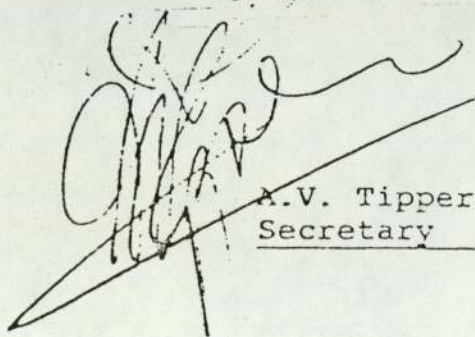
To conclude therefore, whilst the hypotheses have not been conclusively tested and proved, there is strong evidence to suggest that they have been tested sufficiently to indicate that in principle the assumptions are justified.

METROPOLITAN CAMELL COMPANIESHEALTH & SAFETY AT WORK ETC. ACT 1974GENERAL POLICY STATEMENT

1. It is the Companies' policy to provide safe and healthy working conditions and to do all that is reasonable to prevent personal injury and damage to property.
2. The Companies have a particular responsibility to conform with the relevant provisions of the Factories Act and to provide training and instruction to enable employees to perform their work safely and efficiently.
3. The employees have a duty to co-operate in the operation of this policy by working safely and efficiently, using the protective equipment provided. They should also report incidents that could lead to injury or damage and assist in the investigation of accidents with the object of suggesting measures to prevent a recurrence.

Employees will be encouraged to carry out their obligations with respect to statutory requirements, and comply with Company safety procedures which will be jointly agreed, on their behalf.

4. The Companies will continue and extend co-operation with employee trade union representatives to maintain a constant and continuing interest in health and safety matters applicable to the Companies' activities.



A.V. Tipper
Secretary

OCTOBER 1975

HEALTH AND SAFETY AT WORK ECT., ACT 1974.ARRANGEMENTS

To reflect in the ARRANGEMENTS the way in which the GENERAL POLICY STATEMENT is put into effect in practice.

Together with the ORGANISATION it should show how everybody is involved in accident prevention so as to recognise personal responsibilities.

-
1. What to do in CASE OF FIRE is covered by separate instructions posted in all workshops and offices: special fire risks are given a separate notice and "NO SMOKING" rules must be obeyed where they are displayed.

The Fire and Safety Officer is charged with the responsibility of making adequate arrangements concerning fire drills, fire fighting equipment and fire precautions.

2. A system is in operation which requires the reporting by employees of ALL ACCIDENTS, however minor, resulting in personal injury: this is followed by an investigation to determine the cause of the accident so as to prevent any recurrence: accident and injury statistics are provided on a three monthly basis.
3. There are arrangements whereby FIRST AID and MEDICAL TREATMENT is given quickly to people injured on the premises and emergency situations, incorporating the use of outside medical and fire services, are used as necessary.
4. Employees who are FEELING UNWELL, possibly because of their work are able to consult the Sister in charge of the Works Surgery or the Works Doctor on a confidential basis.

The medical staff and back up First Aid teams are used to monitor all cases where persons report that they are unwell.

5. Arrangements are in force to examine the possible harmful effects of any new MATERIALS OR SUBSTANCES that may be used within the Company. Investigations involving the Fire and Safety Officer, Purchasing Department and Works Doctor result in the necessary instructions being issued regarding the safe and correct use of such materials or substances.

6. INSTRUCTION of workpeople in safe working methods and maintenance of these methods are amongst the duties of supervisors: they also initiate any steps necessary to improve unsafe conditions.
7. The TRAINING OF EMPLOYEES in health and safety matters necessary to their work and in the operation of fire equipment and emergency procedures, is undertaken by the Personnel Department, Fire and Safety Officer and the supervisor concerned.
8. GOOD FACTORY HOUSEKEEPING is considered to be a crucial aspect for the safety programme in which everyone must play a part. There are arrangements for:
 - i. the proper storage of clothing, tools and waste
 - ii. the provision of adequate space for machinery and plant
 - iii. providing adequate and clearly marked gangways
 - iv. maintaining clean workrooms and washing, toilet, canteen and first aid facilities.

Good Housekeeping competitions on a regular basis assist in convincing workpeople of the need to keep work areas clean and tidy; and to enforce safe working practices.

9. Work done at a HEIGHT, in CONFINED SPACES, on certain ELECTRICAL EQUIPMENT, or UNGUARDED MACHINERY, requires a PERMIT TO WORK issued by the Maintenance Department so that work can be carried out in safety.
10. MAINTENANCE of equipment and plant on which personal safety depends is a responsibility of the Works Engineer and there are arrangements for:
 - i. the regular examination of ladders
 - ii. examination and testing of lifting equipment with safe working loads marked
 - iii. examination of pressure vessels and shot blasting equipment
 - iv. regular inspection of machine safety devices
 - v. regular examination and testing of electrical apparatus and the installation of electrical equipment and wiring by competent personnel.

All defective plant and equipment will be withdrawn from use until faults are rectified.

11. Special arrangements apply to the INDIRECT WORKERS who need to pass approved tests for CRANEDRIVING, SLINGING and INTERNAL TRUCK DRIVING.
12. Arrangements exist for the Works Engineer and Fire and Safety Officer to check NEW MACHINERY to ensure all precautions are taken before it is ordered or put into service.
13. Various other SAFETY PROCEDURES are in use which control the use of potentially dangerous equipment or materials and lay down operating conditions for those engaged in potentially dangerous work situations.

The applicable safety procedures are kept by the individuals concerned in a handy reference binder and are added to or amended from time to time.

14. Every effort is made to provide the most suitable type of PERSONAL PROTECTIVE EQUIPMENT for the job, in consultation with the supervisor, Fire and Safety Officer and the joint Health and Safety Committee. Arrangements are available for employees to purchase safety footwear on a deferred payment system: all employees are encouraged to use safety footwear whilst at work.
15. JOINT CONSULTATION on health and safety matters has been established for many years and a Health and Safety Committee meets monthly to keep under review measures taken to ensure the health and safety at work of employees and certain other functions as laid down in its constitution.

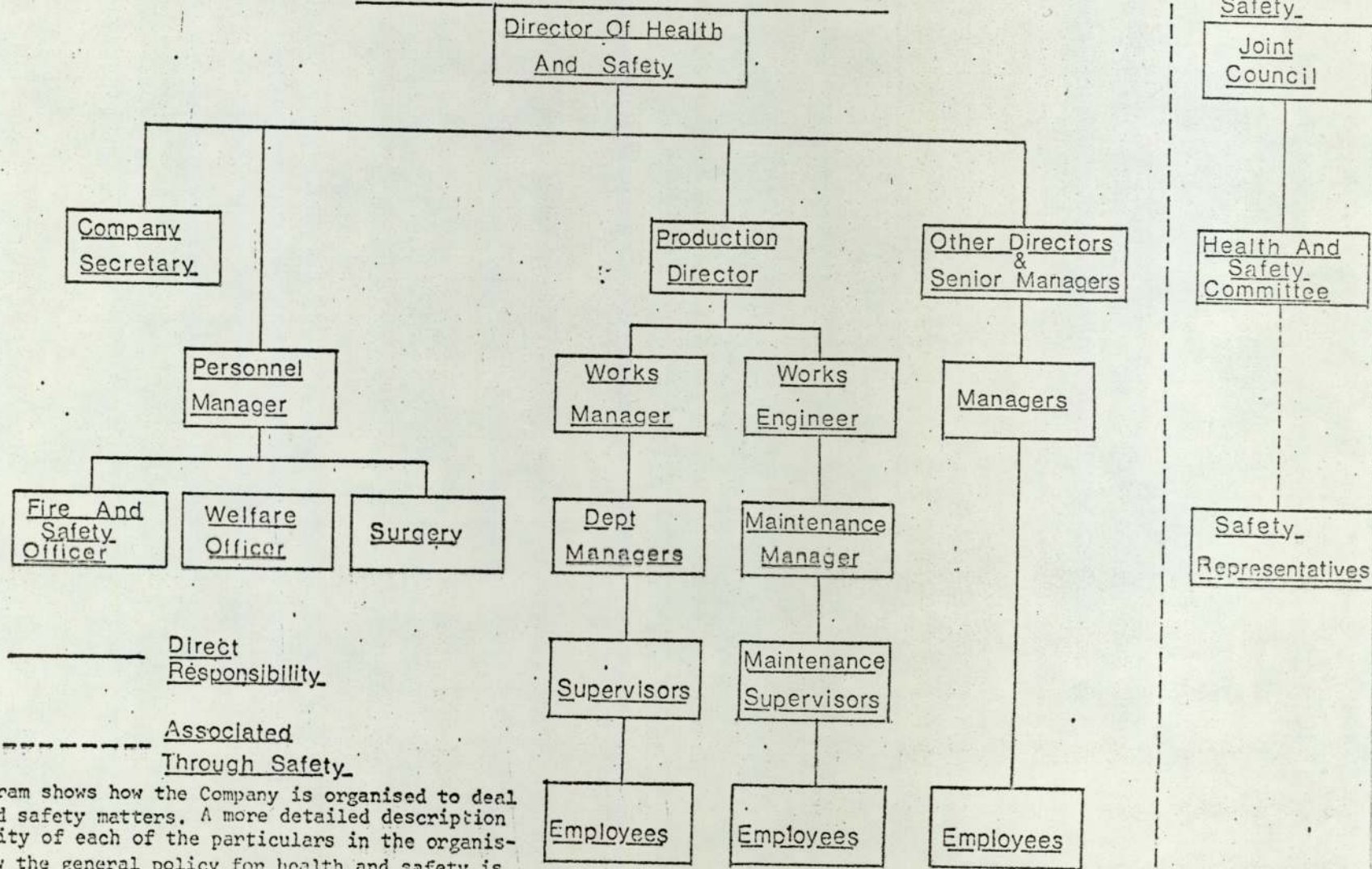
The minutes of such meetings are posted on departmental notice boards.

16. SAFETY CAMPAIGNS are organised to publicise to workpeople the importance of working safely and to indicate the dangers of not wearing protective equipment. Posters, safety bulletins, competitions and information given out with pay packets are all examples of the type of publicity that is given to safety in the Company.
17. SUGGESTIONS by employees on ways in which the workplace could be made safer are welcomed; details are given in the rules for the "Suggestion Scheme".
18. These arrangements are amended from time to time as the situation demands.

METRO-CAMMELL LIMITED

HEALTH AND SAFETY AT WORK ETC., ACT: 1974

COMPANY ORGANISATION RELATING TO SAFETY



The above diagram shows how the Company is organised to deal with health and safety matters. A more detailed description of responsibility of each of the particulars in the organisation shows how the general policy for health and safety is achieved through people employed at various levels in the work situation.

1. The Director of Health and Safety (General Manager).

- a. Will ensure that there is an effective policy for industrial health and safety within the Company and publicly support all persons carrying it out.
- b. Will periodically appraise the effectiveness of the policy and ensure that any necessary changes are made.
- c. Shall ensure that responsibility is properly assigned and accepted at all levels.

2. The Production Director.

- a. Will be responsible to the General Manager for seeing that the health and safety policy is carried out in all parts of the Company and for ensuring that responsibility for health and safety is properly assigned and accepted at all levels.
- b. Shall act as Chairman of the Health and Safety Committee meetings.

3. The Company Secretary.

- a. Should evaluate all risks in the Company relating to accidents at work; health risks at work, loss or damage to Company property and risks to the public through Company activity.
- b. Must ensure that all liability is covered by insurance and advise as to the extent to which risks are acceptable whether insured or not.
- c. Review insurance and loss record periodically and advise when action is necessary to correct adverse trends.

4. The Personnel Manager.

- a. Shall review absences due to accident or injury at work and notify reportable occurrences.
- b. Shall ensure that the restrictions on the hours of work are complied with.
- c. Shall ensure that the Works Surgery and First Aid facilities are provided and maintained.

- d. Shall ensure that all health and safety records and statistics are maintained and distributed.
- e. Should co-operate fully with the Fire and Safety Officer to ensure that the requirements of the safety programme are met.
- f. Shall ensure that protective safety equipment is issued to employees as required.
- g. Shall ensure that adequate safety training is given to employees at all levels including new starters.
- h. Must ensure that all safety representatives receive adequate safety training.
- i. Shall act as Secretary to the Health and Safety Committee.
- j. Shall ensure that adequate liaison between safety representatives and supervisors etc, is maintained.

5. Fire and Safety Officer.

- a. Shall supervise the Company health and safety programme.
- b. Shall regularly inspect the plant to ensure that the programme is being complied with and make recommendations directly to all employees in matters concerning health and safety.
- c. Shall seriously review any safety recommendations received.
- d. Shall attend and supply material for monthly Health and Safety Committee meetings.
- e. Shall assist in the induction and safety training of new employees.
- f. Shall arrange adequate material and publicity for the health and safety programme.
- g. Shall ensure that all fire precaution procedures are maintained and that fire equipment is regularly inspected and serviced.
- h. Shall investigate all accidents and damage to Company property, make reports and recommend corrective action.
- i. Shall inspect new and unusual processes for potential hazards, also investigate the introduction of new materials or substances.

- j. Shall recommend any necessary safety rules, procedures or codes of practice.
- k. Shall maintain the abrasive wheels, power press and milling machine registers and advise on any necessary training before persons are appointed to the registers.
- l. Must inspect and investigate all new plant and plant layouts before they are commissioned.
- m. Will work in close liaison with the appointed safety representatives.

6. The Works Engineer.

- a. Must ensure that all work necessary to ensure safety and good health is carried out promptly.
- b. Must ensure that all his personnel are competent to carry out their work and are fully aware of all hazards.
- c. Shall ensure that abrasive wheels are stored and handled correctly and only fitted by appointed persons.
- d. Must ensure that any unsafe machine or tool is adequately immobilised.
- e. Shall ensure that all regular and periodic equipment inspections are carried out by his personnel as required.
- f. Shall attend all Health and Safety Committee meetings.
- g. Ensure that sub-contractors, within his area of responsibility, adhere to Company safety procedures and statutory requirements.

7. Managers (including Works Manager).

- a. Ensure that day to day health and safety arrangements are being effectively applied within his area of responsibility.
- b. Liaise with Fire and Safety Officer concerning new operations or materials.
- c. Give personal leadership and example to those under their control, in health and safety matters.

- d. Must carefully integrate safety with production, cost and quality.
- e. Ensure that sub-contractors, within their area of responsibility, adhere to Company safety procedures and statutory requirements.

8. Supervisors.

- a. Must familiarise themselves with the Company safety policy.
- b. Must ensure that persons in their departments or sections are adequately trained and fully aware of any hazards in the department.
- c. Must ensure that all employees in their departments or sections know of the appropriate fire and first aid facilities.
- d. Should continually develop safe practices in their departments or sections to ensure maximum safety for all under their supervision.
- e. Must investigate all accidents promptly to discover their cause and eliminate re-occurrence and report the occurrence to the Fire and Safety Officer.
- f. Must complete accident report forms in their departments or sections for all accidents involving injury, damage or lost time.
- g. Shall co-operate with the Fire and Safety Officer on all safety matters.
- h. Shall ensure that all necessary safety devices are always fitted and properly adjusted and maintained.
- i. Shall ensure that safety rules and procedures are observed and that protective equipment is worn or used where appropriate.
- j. Shall ensure that all machinery and equipment is properly maintained and safe to use.
- k. Shall ensure that all defects in their workplaces are promptly reported and rectified.
- l. Shall maintain good housekeeping within their departments or sections at all times.
- m. Must seriously consider any representation about safety and health from other employees, and liaise with the Safety representatives.
- n. Shall attend Health and Safety Committee meetings when required.

9. Medical Staff.

- a. Shall treat immediately all sickness and accident emergencies at work.
- b. Shall conduct pre-employment health examinations where required and give advice on job placement.
- c. Examine periodically persons exposed to special hazards at work.
- d. Will advise on fitness of employees returning to work after serious illness or injury.
- e. Will provide personal advice in health matters relating to work.
- f. Will maintain all required medical and accident records.

10. The Welfare Officer.

- a. Shall provide personal advice concerning social security payments and social services.
- b. Shall maintain contact and visit injured or sick employees.
- c. Maintain records.
- d. Deal with the ordering and sale of safety shoes.

11. Contractors.

- a. Comply with the safety, health and hygiene conditions specified in their contract.
- b. Employ competent persons.
- c. Ensure that employees meet their statutory obligations.

12. The Company Employees.

- a. Shall make themselves familiar with and conform to the health and safety programme at all times.
- b. Shall observe all safety rules, procedures and codes of practice at all times.
- c. Shall wear appropriate safety equipment and use appropriate safety devices at all times.
- d. Will conform to all instructions given by the Fire and Safety Officer and others with a responsibility for health and safety.

- e. Will report all accidents and damage to the supervisor and assist in any investigation as necessary.
- f. May make suggestions to improve health and safety in the Company to the supervisor concerned, the Fire and Safety Officer or to a safety representative.
- g. Must report all hazards to the appropriate person responsible.

AJT/JAS
22.3.76.

HEALTH & SAFETY POLICYSAFETY PROCEDURE

Code: A3

Subject: Accident Reporting

The Health and Safety at work etc. Act 1974, Section 7, requires employees to co-operate to enable the employer to carry out his duties or requirements under the Act, the employer having the obligations to report all lost time accidents and dangerous occurrences to the Factory Inspector and also in Section 2 to provide and maintain plant and systems of work that are, so far as is reasonably practicable, safe and without risks to health.

This means therefore that employers have a duty to investigate all lost time injury accidents and dangerous occurrences and employees have a duty to co-operate to enable the employer to carry out these investigations.

In order for the Company to comply with statutory obligations imposed under the Factories Acts 1961, the Health and Safety at Work etc. Act 1974, the forthcoming Safety Representatives and Safety Committees Regulations and also to prevent a re-occurrence of any industrial injury or dangerous occurrence, the following procedure will apply to the investigations and reporting of accidents and dangerous occurrences.

Procedure

- i) The objective of any investigation into an accident or dangerous incident is to establish the basic facts as to how and why the accident or incident occurred and to identify from those facts what steps can be taken to avoid re-occurrence.
- ii) There are two types of accident reports that need to be completed; one by the Supervisor of the injured party and the other by the Fire and Safety Officer in conjunction with the appropriate Safety Representative.
- iii) For all injuries that are not classed as minor, and where there is a likelihood of the injured person losing time from work, the Surgery Sister will complete the appropriate section of the Works accident sheet and send it to the Supervisor concerned, a copy also being sent to the Personnel Department. The Supervisor should complete the report in as much detail as possible and return it to the Personnel Department.
- iv) The Fire and Safety Officer is responsible for carrying out an independent investigation to determine the details of the accident including its causes, and for reporting to the

Personnel Manager.

The results of the investigation will enable the Company to fulfill its statutory obligations and assist in preventing the likelihood of a similar incident re-occurring.

- v) As a general principle it is important that the facts relating to any injury, accident or dangerous occurrence are investigated as soon after the incident as possible. Bearing in mind the medical condition of any injured party or witnesses to the accident, they should not be unduly pressed for statements.
- vi) Understanding the possible reluctance on the part of the injured party or witnesses to an injury accident to make statement, the Company will not press for written statements. However, the person concerned will be expected to give verbal information to the Fire and Safety Officer together with the Safety Representative, in private, so that the full facts of the incident can be ascertained. The domestic shop steward of the interviewee will be present at the interview.
- vii) The right of both the Company and the Unions to pass on the facts and views which they have established concerning any accident or incident to their insurance or legal representatives is recognised, but is agreed that this process will not interfere with the function of properly investigating each accident.

2.5.77

HEALTH & SAFETY POLICYSAFETY PROCEDURE

Code: R1

Subject: Maintenance of Accident Records

It is important to ensure that a careful record is kept of all injury accidents that occur and are reported to the Works Surgery so that action can be taken at the appropriate time to reduce accidents in the correct areas and so that the effects of safety policies can be measured.

In addition because of statutory and insurance requirements full records need to be maintained together with the results of investigations into the reason for the accident occurring.

The following procedure should apply to all injury accidents that are reported to the Works Surgery, or out of normal working hours, at the Security Gatehouse.

Procedure

- i) After being treated in the Surgery, the Sister or Assistant will enter the injured parties name, clock number and budget centre, together with details of injury and treatment into the day book.

In addition the same details, using a code to describe the cause and type of injury, will be entered onto separate sheets which are then passed onto the Personnel Department daily.
- ii) In the case of a person being sent to hospital for examination the Sister will complete the appropriate section of the hospital report form sending a carbon copy to the Personnel Department.
- iii) Each person sustaining an injury is entitled to complete the Accident Register, held in the surgery, and is encouraged to do so.
- iv) For all injuries that are not classed as minor, and where there is a likelihood of the injured person losing time from work, the Sister will complete the appropriate section of the Works Accident Sheet and send it to the Supervisor concerned, a copy being sent to the Personnel Department. The Supervisor should complete the accident report in as much detail as possible and return it to the Personnel Department.
- v) The daily injury sheets received by the Personnel Department will be transposed into comprehensive analysis sheets, on a budget centre basis, which will be issued on a three monthly basis to all associated Supervisors and Managers for investigation.

- vi) The Fire and Safety Officer is responsible for carrying out an independent investigation into the causes of accidents and for making a report to the Personnel Manager.
- vii) The Personnel Department is responsible for completing and despatching the relevant paperwork to H.M. Factory Inspectorate, the Company's Insurers and the Department of Health and Social Security, and for maintaining statutory registers.
- viii) All records relating to Industrial injuries, with the exception of the Surgery daybook and the Accident register, will be kept in the Personnel Department.

1976

B.C. To: Mr.

THE METRO-CAMMELL GROUP
 RECORD OF ACCIDENTS FOR THE PERIOD ()

	11	12	13	14	15	16	17	18	19	20	21	22	23	Total	%
1															
2															
3															
4															
5															
6															
7															
8															
9															
10															
Total															
%															

- | Agency of Injury | Location of Injury | Nature of Injury |
|---|-----------------------|--|
| A. Falls of Persons | 1. Head & Neck | 11. Cuts or Lacerations |
| B. Falls of Materials | 2. Eyes | 12. Punctures |
| C. Handling | 3. Arms inc. Wrists | 13. Bruises, Contusions, Abrasions |
| D. Stepping or Striking against objects | 4. Hands inc. Fingers | 14. Fractures & Crushes |
| E. Hand Tools | 5. Back & Spinal Col. | 15. Sprains, Strains & Dislocations |
| F. Machinery in Motion | 6. Chest | 16. Burns & Scalds |
| G. Electricity/Fire etc | 7. Legs | 17. Foreign Bodies |
| H. Welding Equipment | 8. Feet | 18. Amputations - T Traumatic
H Hospital after the Accident |
| I. Other Types | 9. Toes | 19. Concussion |
| | 10. Multiple & Others | 20. Asphyxiation/Poisoning by
Fumes or Gases |
| | | 21. Electric Shock |
| | | 22. Welding Flash |
| | | 23. Miscellaneous e.g. Nerve
Injuries etc., |

	1	2	3	4	5	6	7	8	9	10	Total	%	11	12	13	14	15	16	17	18	19	20	21	22	23
A																									
B																									
C																									
D																									
E																									
F																									
G																									
H																									
I																									
Total																									
%																									

Total time lost due to accidents
 hours

Minor Injuries
 Time Lost | Number
 hours |

Major Injuries
 Time Lost | Number
 hours |

Hours worked hours
 Accident Frequency rate |

Note: i) Major injuries are those which result in lost time beyond the shift in which the accident occurred.
 ii) Accident frequency rate = $\frac{\text{Total number of lost time accidents} \times 100,000}{\text{Total number of hours worked}}$

SEVERITY GROUPSMedical Definitions

GROUP 1

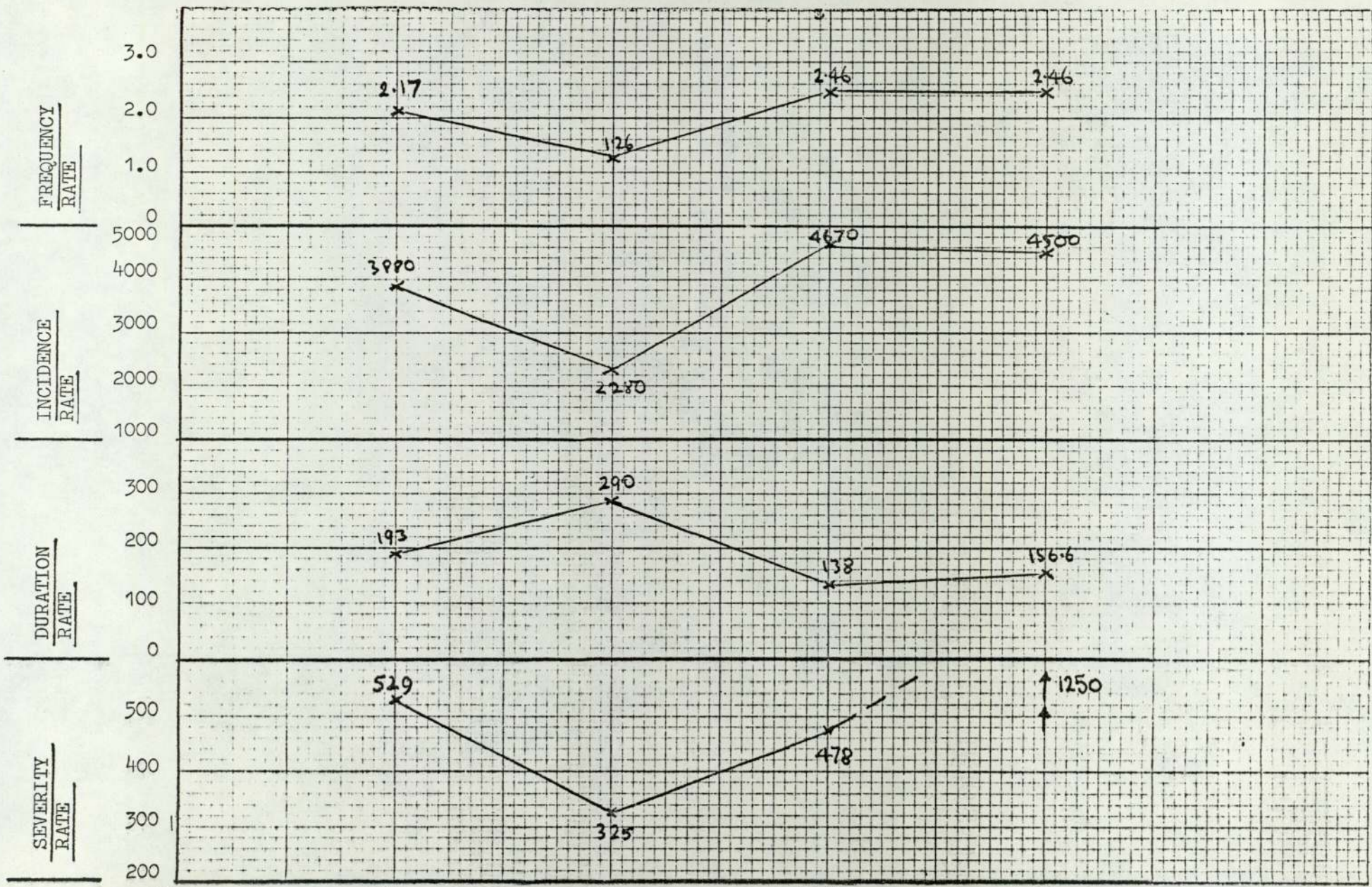
- 1 Fractures (excluding 20 and 21)
- 2 Dislocations (excluding 22)
- 3 Amputations (excluding 23)
- 4 Crushing without fracture (excluding 25)
- 5 Concussions (excluding 26)
- 6 Deeply penetrating burns and scalds
- 7 Burns and scalds covering more than on square foot
- 8 Eye injuries involving loss of eye
- 9 Eye injuries involving permanent impairment of vision
- 10 Lacerations and wounds requiring at least five stitches
- 11 Lacerations and wounds requiring skin grafting
- 12 Wounds resulting in a severed tendon

GROUP 2/3*

- 13 Abrasions and surface injuries
- 14 Laceration and open wounds (excluding 10 and 11)
- 15 Bruises
- 16 Strains and sprains (not resulting in 17 and 18)
- 17 Hernias
- 18 Slipped discs
- 19 Eye injuries (excluding 8 and 9)
- 20 Fractures of single bone of finger, thumb or toe
- 21 Hairline cracks
- 22 Dislocation of finger, thumb or toe
- 23 Amputations involving less than a single joint of finger, thumb or toe
- 24 Minor burns and scalds (excluding 6 and 7)
- 25 Crushing resulting in absence of seven calendar days or less
- 26 Concussions resulting in absence of seven calendar days or less
- 27 Gassing
- 28 Poisoning
- 29 Sepsis
- 30 Other

(Source: "HEALTH AND SAFETY - MANUFACTURING AND SERVICE INDUSTRIES 1976")
(Health and Safety Executive)

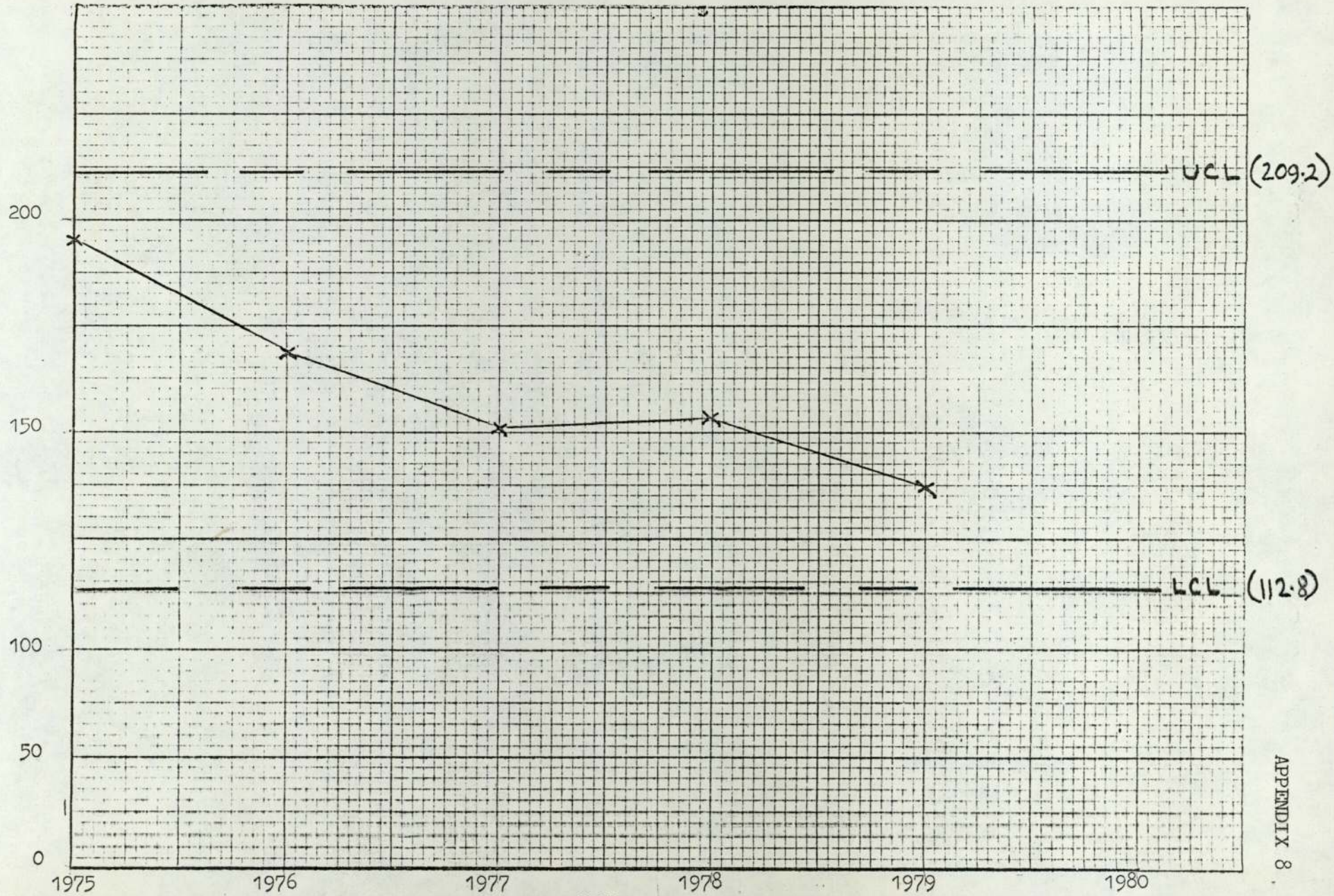
SAFETY INDICES



ALL ACCIDENTS FREQUENCY RATE

- 005 -

ALL ACCIDENT FREQUENCY RATE
(ALL ACCIDENTS x 100,000)
HOURS WORKED



CALCULATION OF ALL ACCIDENT FREQUENCY RATE

APPENDIX 9

CONTROL LIMITS (1975-1979 INC)

Year	Quarter	$\frac{\text{Accidents} \times 100,000}{\text{Hours worked}}$	F	F-Fav	$(F-Fav)^2$
1975	1st	$\frac{640}{3.0}$	213.3	52.3	2735.0
	2nd	$\frac{567}{2.72}$	208.4	47.4	2246.7
	3rd	$\frac{400}{2.17}$	184.3	23.3	542.9
	4th	$\frac{500}{2.96}$	168.9	7.9	62.4
1976	1st	$\frac{518}{2.55}$	203.1	42.1	1772.4
	2nd	$\frac{417}{2.64}$	157.9	-3.1	9.6
	3rd	$\frac{336}{2.17}$	154.1	-6.9	47.6
	4th	$\frac{437}{2.78}$	157.2	-3.8	14.4
1977	1st	$\frac{442}{2.74}$	161.3	0.3	0.1
	2nd	$\frac{402}{2.64}$	152.2	-8.8	77.4
	3rd	$\frac{343}{2.43}$	140.6	-20.4	416.2
	4th	$\frac{490}{3.27}$	149.4	-11.6	134.6
1978	1st	$\frac{586}{3.6}$	162.8	0.8	0.6
	2nd	$\frac{613}{3.99}$	153.6	-7.4	54.8
	3rd	$\frac{538}{3.46}$	155.0	-6.0	36.0
	4th	$\frac{689}{4.76}$	144.7	-16.3	265.7
1979	1st	$\frac{802}{5.32}$	150.8	-10.2	104.0
	2nd	$\frac{735}{6.07}$	121.1	-39.9	1592.0
	3rd	$\frac{696}{4.73}$	147.1	-13.9	193.2
	4th	$\frac{774}{5.79}$	133.7	-27.3	745.3

$$\text{Fav} = 161.0 \qquad (F-Fav)^2 = 11,050.7$$

$$S.D. = \sqrt{\frac{(F-Fav)^2}{n-1}} = \sqrt{\frac{11,050.7}{18}} = 24.1$$

$$UCL = 161.0 + 2(24.1) = 209.2 ; \quad LCL = 161.0 - 2(24.1) = 112.8$$

CALCULATION OF CONTROL CHART CONTROL LIMITS USING
ACCIDENT DATA FROM 1975

Year	Quarter	F	F - Fav	(F - Fav) ²
1975	1st	213.3	52.3	2735.0
	2nd	208.4	47.4	2246.7
	3rd	184.3	23.3	542.9
	4th	168.9	7.9	62.4
		$\Sigma = 774.9$		$\Sigma = 5587.0$

$$S.D. = \sqrt{\frac{(F - Fav)^2}{n-1}} = \sqrt{\frac{5587}{3}} = \sqrt{1862.3}$$

$$S.D. = 43.15$$

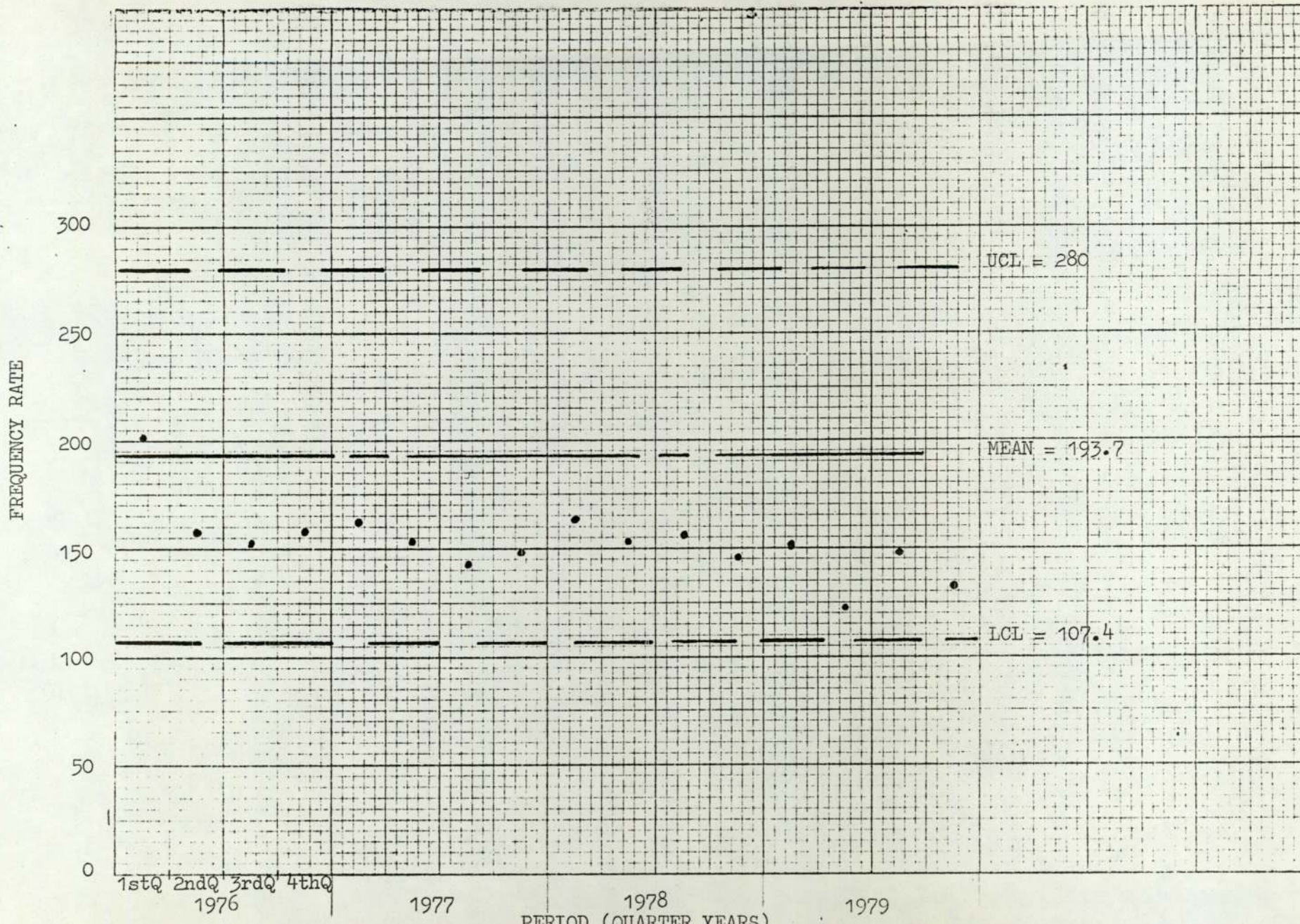
$$\Sigma F = 774.9 \quad Fav = 193.7$$

$$\text{Upper Control Limit (UCL)} = 193.7 + 2(43.15) = 280$$

$$\text{Lower Control Limit (LCL)} = 193.7 - 2(43.15) = 107.4$$

CONTROL CHART FOR ACCIDENT FREQUENCY

CONTROL LIMITS CALCULATED FROM 1975 DATA (SEE APPENDIX 9a)



- 301b -

CALCULATION OF SAFE - T-SCORE (1976-1979 INC)

$$\text{All accident Frequency Rate} = \frac{\text{All accidents} \times 1,000,000}{\text{Man hours worked}}$$

<u>Year</u>	<u>Frequency Rate</u>
1975	1949
1976	1682
1977	1511
1978	1533
1979	1372

$$\text{Safe - T-Score} = \frac{F_{\text{now}} - F_{\text{past}}}{\sqrt{\frac{F_{\text{past}}}{\text{Million work hours}}}}$$

$$1976 - \text{S.T.S.} = \frac{1682 - 1949}{\sqrt{\frac{1949}{1.086}}} = -6.30$$

$$1977 - \text{S.T.S.} = \frac{1511 - 1682}{\sqrt{\frac{1682}{1.11}}} = -4.39$$

$$1978 - \text{S.T.S.} = \frac{1533 - 1511}{\sqrt{\frac{1511}{1.58}}} = 0.71$$

$$1979 - \text{S.T.S.} = \frac{1372 - 1533}{\sqrt{\frac{1533}{2.19}}} = -6.10$$

RELATIONSHIP BETWEEN LENGTH OF SERVICE AND INJURIES - OCTOBER 1979 χ^2 Significance Test

<u>Length of Service</u>	<u>Employees</u>		<u>Accidents</u>	
	<u>No</u>	<u>%</u>	<u>Expected Frequency</u>	<u>Observed Frequency</u>
		(A)	$(f_e) = (308 \times A)$	(f_o)
Under 1 yr	363	29	89.3	123
1-5 yrs	450	36	110.9	83
Over 5 yrs	473	35	107.8	102
	<hr/>	<hr/>	<hr/>	<hr/>
	$\Sigma = 1250$	100	308.0	308
	<hr/>	<hr/>	<hr/>	<hr/>

<u>$(f_o - f_e)$</u>	<u>$(f_o - f_e)^2$</u>	<u>$\frac{(f_o - f_e)^2}{f_e}$</u>
34.7	1204.9	13.48
-27.9	778.4	7.02
-5.8	33.6	0.31
		<hr/>
		$\chi^2 = 20.81$
		<hr/>

$$\chi^2 = \sum \frac{(f_o - f_e)^2}{f_e}$$

From Chi squared distribution tables with 2 degrees of freedom the value of $\chi^2_{(0.001)} = 13.82$

METRO-CAMMELL LIMITED

HEALTH AND SAFETY POLICY

QUESTIONNAIRE

(1977)

STATEMENT	Average	Strongly Agree 7	Partially Agree 6	Agree 5	Uncertain 4	Disagree 3	Partially Disagree 2	Strongly Disagree 1
1 The work done by the Safety Committee is well known to me.	4.75	10	13	28	7	11	1	5
2 The members of the Safety Committee are known to me.	4.38	6	6	31	16	6	4	6
3 The Safety Committee does a good job in promoting Health & Safety (H.&S.) in the Company.	4.97	12	20	18	11	7	7	-
4 The Safety Committee needs to concern itself more with what employees want rather than what Company Policy is. (Reverse)	2.52	2	1	8	4	18	17	25
5 The Safety Committee is not in touch with the needs and requirements of employees. (Reverse)	3.3	4	2	14	10	15	21	9
6 Important H.&S. matters are well publicised in the Company.	5.16	15	15	29	4	8	3	1
7 Individual employees are not asked what they need with regard to H.&S. (Reverse)	2.64	1	3	9	7	21	12	21
8 Individual employees are not involved in formulation of H.&S. proposals. (Reverse)	2.83	2	2	6	12	21	13	19
9 My union representative looks after my H.&S. requirements adequately.	4.98	6	12	23	11	13	2	8
10 I generally accept H.&S. proposals that are put forward	5.5	20	15	32	5	-	-	3

STATEMENT	Average	7	6	5	4	3	2	1
11 I usually understand the reasons behind the H.&S. proposals made by the Company.	5.5	21	9	39	2	1	2	1
12 My safety requirements are taken care of by my Supervisor.	4.3	8	17	18	9	12	1	10
13 Shop Stewards put the views of employees to the Company quite adequately.	4.54	8	9	22	19	13	1	3
14 I should be left to do my job without people telling me of the necessary safety precautions. (Reverse)	5	26	6	20	3	11	4	5
15 More money needs to be spent to make the factory a safer place in which to work. (Reverse)	2.18	2	-	4	5	18	10	36
16 The Company is a safe place to work.	3.94	2	19	13	7	15	10	9
17 Everything possible is being done to protect my health whilst at work.	4.53	7	13	20	11	10	5	9
18 The people concerned with H.&S. in the Company are competent to do their job.	4.42	5	12	18	27	4	6	3
19 There is a genuine desire by the Management to make the workplace safer.	5.55	22	14	26	10	3	-	-
20 The main reason that Management pursue safe working policies is because of Trade Union pressure. (Reverse)	3.5	3	2	16	16	14	19	5
21 If it were not for Factory Safety law, the factory would not be as safe as it is. (Reverse)	2.45	2	1	3	3	30	11	25
22 The Company follows safe working policies because of the Factory Inspector. (Reverse)	2.95	4	-	8	6	29	14	14

STATEMENT	Average	7	6	5	4	3	2	1
23 Individuals encourage their Supervisors to make the workplace safer. (Reverse)	2.95	-	2	14	7	21	17	14
24 Employees are not greatly concerned about following safe working practices. (Reverse)	3.92	7	4	21	5	24	10	4
25 I am aware of the need for protective clothing and equipment in my occupation.	6.0	39	3	31	-	2	-	3
26 I don't wish to use protective clothing etc, because it is not necessary. (Reverse)	5.30	27	5	31	2	3	3	4
27 I should be provided with more protective clothing and equipment.	5.0	15	12	26	8	12	-	2
28 This Company's safety record is good compared with that of other Companies.	4.3	5	7	17	34	6	1	5
29 I am encouraged to have medical treatment even for minor injuries.	5.94	38	5	28	-	3	-	1
30 There are too many accidents in my department. (Reverse)	4.4	7	6	33	9	8	8	4
31 Employees are not interested in the H.&S. of their colleagues. (Reverse)	4.38	13	3	26	9	11	8	5
32 I have a responsibility to report hazards to a responsible person.	5.78	32	7	30	3	1	-	2
33 I have no responsibility under the law to wear protective clothing or use protective equipment. (Reverse)	4.70	20	1	24	11	9	5	5
34 There is no need for me to make suggestions to improve H.&S., that is the responsibility of others. (Reverse)	5.51	29	5	30	3	5	2	1

STATEMENT	Average	7	6	5	4	3	2	1
35 More safety training should be provided for employees. (Reverse)	2.21	2	1	-	2	33	2	35
36 I can win an award for making a safety suggestion.	4.75	8	6	36	18	3	-	4
37 There are far more important things to worry about in this factory than safety. (Reverse)	5.41	33	3	25	2	5	3	4
38 The safety competitions are a good means of encouraging employees to think about safety.	5.5	26	4	36	5	-	1	3
39 If group discussions were held we could put our point of view to Management and vice versa.	5.5	26	5	36	2	4	-	2
40 Employees need to put forward their point of view more often to improve safety performance in the Company. (Reverse)	2.15	4	-	-	-	29	4	38

METRO-CAMMELL LIMITED

HEALTH AND SAFETY POLICY

QUESTIONNAIRE

APPENDIX 13

(1978)

How to complete the Questionnaire:

Alongside each statement please tick in the box, that which most closely describes your attitude towards the statement.

If you cannot understand the question leave it blank.

STATEMENT	STRONGLY AGREE	AGREE	UNCERTAIN	DISAGREE	STRONGLY DISAGREE
	5	4	3	2	1
a) The work done by the Safety Committee <u>is</u> well known to me.	5	22 60%	13 29%	4	1 11%
b) The Safety Committee does a good job in promoting Health and Safety (H & S) in the Company.	7	20 59%	15 32%	4	- 9%
c) The Safety Committee is <u>not</u> in touch with the needs and requirements of employees.	1	12 28%	17 30%	11	6 36%
d) Important H & S matters are well publicised in the Company.	10	19 62%	12 25%	4	2 13%
e) My Union Representative (Safety Rep.) looks after my H & S requirements adequately.	4	25 62%	8 17%	9	1 21%
f) I generally accept H & S proposals that are put forward by the Company.	9	29 83%	7 13%	2	- 4%

STATEMENT	STRONGLY AGREE 5	AGREE 4	UNCERTAIN 3	DISAGREE 2	STRONGLY DISAGREE 1
g) The Company follows safe working policies because of the Factory Inspector.	7	28 73%	4 8%	8	1 19%
h) Employees are <u>not</u> greatly concerned about following safe working practices.	4	12 36%	7 16%	15	6 48%
i) I am aware of the need for protective clothing and equipment in my occupation.	29	17 96%	2 4%	-	-
j) This Company's safety record is good compared with that of other Companies.	6	15 48%	20 45%	1	2 7%
k) I <u>am</u> encouraged to have medical treatment even for minor injuries.	32	15 98%	-	1	- 2%
l) I have a responsibility to report hazards to a responsible person.	30	15 96%	1 2%	-	1 2%
m) I would like to have more information about accidents in my Department.	18	21 83%	4 8%	4	- 8%
n) I occasionally discuss safety problems with my Safety Representative.	9	16 57%	3 7%	12	5 36%

STATEMENT	STRONGLY AGREE 5	AGREE 4	UNCERTAIN 3	DISAGREE 2	STRONGLY DISAGREE 1
o) My Safety requirements are taken care of by my Supervisor.	7	19 56%	8 18%	9	3 26%
p) Shop Stewards put the views of employees to the Company quite adequately.	12	16 58%	11 23%	6	3 19%
q) The Company is a safe place in which to work.	5	21 54%	7 15%	12	3 31%
r) All that is possible is being done to protect my health whilst at work.	6	20 54%	12 25%	9	1 21%
s) The Company has competent people who deal with H & S.	4	31 78%	8 18%	2	- 44%
t) There is a genuine desire by Management to make the workplace safer.	8	26 74%	10 22%	1	1 4%
u) The <u>main</u> reason that Management pursue safe working policies is because of Trade Union pressure.	8	19 59%	11 24%	8	- 17%
v) Factory Safety law is the <u>main</u> reason why the Management pursue safe working policies.	9	25 72%	8 17%	5	- 11%

STATEMENT	STRONGLY AGREE 5	AGREE 4	UNCERTAIN 3	DISAGREE 2	STRONGLY DISAGREE 1
w) I do not know who my Safety Rep. is.	2	8 22%	8 18%	18	9 60%
x) Employees need to put forward their point of view more often to improve safety performance in the Company.	25	19 96%	1 2%	-	1 2%

MARK
HERE

Put a (1) by the side of the group who in your opinion contribute most to safety in the Company, put a (2) by the next most important group and (3) by the third most important group.

Safety Representatives
 Fire and Safety Officers
 Other Employees
 Management
 Foremen
 Other Shop Stewards
 Factory Inspectors
 Others

	1st	2nd	3rd
Safety Representatives	16	6	5
Fire and Safety Officers	10	7	8
Other Employees	1	4	2
Management	-	3	3
Foremen	-	3	6
Other Shop Stewards	2	8	6
Factory Inspectors	6	4	2
Others	-	-	-

METRO-CAMELL LIMITED

APPENDIX 14

HEALTH AND SAFETY POLICY

9 - 13 JULY 1979

How to Complete the Questionnaire:

Alongside each statement please tick the box, the comment that most closely describes your attitude toward the statement.

If you cannot understand the question, leave it blank.

AGE	16 to 21 years	6	21 to 30 years	15	31 to 40 years	13	41 to 50 years	9	51 to 65 years	12
SERVICE	Under 1 year	11	1 to 5 years	21	Over 5 years	23				

STATEMENT	AGREE 3	UNCERTAIN 2	DISAGREE 1
a) The work done by the Safety Committee <u>is</u> well known to me.	29 52.7%	12 21.8%	14 25.5%
b) The Safety Committee does a good job in promoting Health and Safety (H&S) in the Company.	29 52.7%	19 34.5%	7 12.8%
c) My Safety Representative looks after my H & S requirements adequately.	22 40%	18 32.7%	15 27.3%
d) I generally accept H ' S proposals that are put forward by the Company.	41 74.5%	11 20%	3 5.5%
e) This Company's safety record is good compared with that of other Companies.	17 31%	32 58%	6 11%
f) I <u>am</u> encouraged to have medical treatment even for minor injuries.	49 89%	3 5.5%	3 5.4%
g) I occasionally discuss safety problems with my Safety Rep.	23 41.8%	10 18.2%	22 40%
h) Safety Representatives put the views of employees to the Company quite adequately.	28 51%	19 34.5%	8 14.5%
i) All that is possible is being done to protect my health whilst at work.	20 36.4%	14 25.5%	21 38.1%

RESPONSE
Numbers
Percentage

STATEMENT	AGREE 3	UNCERTAIN 2	DISAGREE 1
j) There is a genuine desire by Management to make the workplace safer.	32 58.2%	18 32.7%	5 9.1%
k) I do not know who my Safety Rep. is.	25 45.5%	6 10.9%	24 43.6%
l) The last year has seen an improvement in accident prevention arrangements.	22 40%	26 47.3%	7 12.7%
m) The Safety Rep. is largely responsible for these improvements.	23 41.8%	25 45.5%	7 12.7%
n) I am more conscious of the importance of safe working than I was 12 months ago.	45 81.8%	3 5.5%	7 12.7%
o) The Safety Rep. has been largely responsible for making the factory safer.	26 47.3	21 38.2%	8 14.5%

Put a (1) by the side of the group who in your opinion contribute most to safety in the Company. Put a (2) by the side of the next most important group and so on until you have marked up to (8).

- Safety Representative
- Fire & Safety Officers
- Management
- Foremen
- Shop Stewards Other than Safety Reps.
- Factory Inspectors
- Employees
- Others

MARK
HERE

METRO-CAMELL LIMITED

APPENDIX 15

HEALTH AND SAFETY POLICY

9 - 13 JULY 1979

How to Complete the Questionnaire:

Alongside each statement please tick the box, the comment that most closely describes your attitude toward the statement.

If you cannot understand the question, leave it blank.

AGE	16 to 21 years	21 to 30 years	31 to 40 years	41 to 50 years	51 to 65 years
SERVICE	Under 1 year	1 to 5 years	Over 5 years		

STATEMENT	AGREE	UNCERTAIN	DISAGREE
	3	2	1
a) The work done by the Safety Committee <u>is</u> well known to me.	68% 60% 53%	9% 29% 22%	23% 11% 25%
b) The Safety Committee does a good job in promoting Health and Safety (H&S) in the Company.	66% 59% 53%	15% 32% 35%	19% 9% 12%
c) My Safety Representative looks after my H & S requirements adequately.	55% 62% 40%	15% 17% 33%	30% 21% 27%
d) I generally accept H ' S proposals that are put forward by the Company.	89% 83% 75%	7% 13% 20%	4% 4% 5%
e) This Company's safety record is good compared with that of other Companies.	39% 48% 31%	45% 45% 58%	16% 7% 11%
f) I <u>am</u> encouraged to have medical treatment even for minor injuries.	95% 98% 89%	- - 6%	5% 2% 5%
g) I occasionally discuss safety problems with my Safety Rep.	- 56% 42%	- 6% 35%	- 38% 40%
h) Safety Representatives put the views of employees to the Company quite adequately.	52% 58% 51%	25% 23% 35%	23% 19% 14%
i) All that is possible is being done to protect my health whilst at work.	53% 54% 36%	15% 25% 26%	32% 21% 38%

FEB '77
OCT '78
JUL '79

STATEMENT	AGREE 3	UNCERTAIN 2	DISAGREE 1
j) There is a genuine desire by Management to make the workplace safer.	82% 74% 58%	13% 22% 33%	5% 4% 9%
k) I do not know who my Safety Rep. is.	- 22% 45%	- 18% 11%	- 60% 44%
l) The last year has seen an improvement in accident prevention arrangements.	- 40%	- 47%	- 13%
m) The Safety Rep. is largely responsible for these improvements.	- 42%	- 46%	- 12%
n) I am more conscious of the importance of safe working than I was 12 months ago.	- 82%	- 5%	- 13%
o) The Safety Rep. has been largely responsible for making the factory safer.	- 47%	- 38%	- 15%

Put a (1) by the side of the group who in your opinion contribute most to safety in the Company. Put a (2) by the side of the next most important group and so on until you have marked up to (8).

- Safety Representative.
- Fire & Safety Officers
- Management
- Foremen
- Shop Stewards Other than Safety Reps.
- Factory Inspectors
- Employees
- Others

MARK
HEE

OVERHEAD EXPENDITURE

<u>EXPENSE CODE</u>	<u>DESCRIPTION</u>	
103	External Training	H&S
135	Indirect work - Maintenance	H&S
144	Works Training	H&S
151	Attendance at Surgery	
153	Attendance - Safety Films	
154	Attendance - Works Meetings	H&S
155	Attendance - St. John Ambulance First Aid Meetings	
254	Course and Exam Fees	H&S
304	Protective Equipment	H&S
307	Consumable Stores	H&S
308	Small Tools etc.	H&S
356	Newspapers, Magazines	H&S
357	Library and special publications	H&S
403	Surgery Laundry	
410	Rubbish Removal	
411	Effluent disposal	
452	Doctor's fees	H&S
454	Consultant fees	H&S

METRO-CAMMELL LTD

APPLICATION FOR SPECIAL FUNDS

TITLE OF SCHEME								ORDER No.		
LOCATION								Budget Centre		
FUNDS REQUIRED FOR	CAPITAL EXPENDITURE ON :-		Plant & M/c	Land & Buildings	Small Tools	C & O Equipment	Light Structures	Motor Vehicles		
	AFTER SALES SERVICE ON :-									
	SPECIAL REVENUE ON :-		CONTRACT No.		OVERHEADS B/C No.		PROVISION TITLE			
	DEVELOPMENT ON :-									
	SPECIAL TOOLING FOR :-									
FUNDS REQUIRED (C/W name of supplier)			To be Capitalised	To be written off to Provision	To be written off as an overhead	To be written off as a Contract Cost	To be paid for by a Customer			
			£	£	£	£	£			
VAT →										
Start	Finish	TOTALS →								
JUSTIFICATION			In all cases of Capital Expenditure, other than Motor Vehicles, the originator will attach a supporting statement, detailing both Technical and Economic cases as well as the pay back period.							
1. COST REDUCTION <input type="checkbox"/> 2. NEW CAPACITY <input type="checkbox"/> 3. REPLACEMENT <input type="checkbox"/> 4. STATUTORY <input type="checkbox"/> 5. OTHER <input type="checkbox"/>			COMMENTS:-							
			Return on Investment			%	Payback Period		YRS	
REDUNDANT PLANT		NO's	TAX W D V.	N.B.V.	PROCEEDS	BOOK P/L				
EXPENSE CATEGORY										
CAPITAL EXPENDITURE			SPECIAL REVENUE			AFTER SALES SERVICE	DEVELOPMENT			
LAIRD SANCTION	M.D. DISC.		OVERHEADS	CONTRACT	PROVISION	CONTRACT	CUSTOMER			
£			B/C							
THIS AUTH'N	THIS AUTH'N		AUTH'N Y.T.D.	THIS AUTH'N	AUTH'N Y.T.D.	THIS AUTH'N	THIS AUTH'N			
£	£		£	£	£	£	£			
AUTH'N Y.T.D.	AUTH'N Y.T.D.		BUDGET	AUTH'N Y.T.D.	BAL. PROV'N	CUM. AUTH'N	CUM. AUTH'N			
£	£		£	£	£	£	£			
SIGNATURES FOR APPROVAL	ORIGINATOR	DESIGN	PURCHASING	PRODUCTION	SALES	FINANCE	SECRETARY	G.M.	CHAIRMAN	LAIRD G.
DATE										

INTERNAL MEMORANDUM

To: Circulation Below

From: D B Whitehouse
Director & General Manager

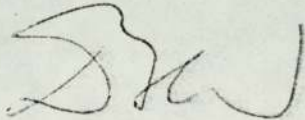
REVISED CAPITAL & SPECIAL REVENUE APPLICATIONS

In order to determine the amount of money being spent on Health and Safety in Metro-Cammell Limited, Capital & Special Revenue Applications have been revised to include a section that requires to be completed by the originator and which is printed in red on the attached sheets.

All persons originating applications are asked to state whether there is a Health and Safety aspect applicable to the request, and to estimate what percentage this is.

For example, should the request be for an item or items which are required to conform to current Health and Safety legislation and which otherwise would not have been requested, this could warrant 100% content, whilst another item which is being requested for production purposes but has some Health and Safety application could warrant a very low percentage content, ie 5% or 10% or, on some occasions, maybe 0% content.

Would you please ensure, therefore, that in future all applications put forward have this particular section completed.



DBW/AES

Circulation: Mr F J M Bonneres
Mr G E Canham
Mr C Davis
Mr C Downward
Mr G Harris
Mr B King
Mr R Newton
Mr E V Phillips
Mr B S Ronan
Mr A V Tipper
Mr W J Wright

HEALTH AND SAFETY EXPENDITURES (1979)CAPITAL EXPENDITURE

<u>ASF NO.</u>	<u>DESCRIPTION</u>	<u>% H&S</u>
1364	Toilet Facilities	100
1378	Fire Alarm System - Common Lane	100
1382	Flymo Grass Cutter - Safety Officer	100
1386	Extension to Fire Alarm System - Leigh Rd	100
0219	Translift Platform	50
0246	Four Aluminium Ladders	50
0247	Bodyside Rivetting Gantry	50
0142	Test Point Outlets I Shop	100
0258	Cleaning Equipment	10
0270	Lifting Beam	75
0272	Mezzanine Floor	10
0276	Carbon Dioxide Gas Analyser	20
0280	Fume Extractors F Shop	100
0291	Adjustable Staging	25
0298	Cabinets for Safety Equipment	100
0301	Welding Equipment	50
0302	Air Compressors	50
0303	Grinder (small)	20
0304	Maintenance Outfit	50
0312	Linishing Enclosure	10
0315	Forced ventilation - Mezzanine floor	15
0316	" " " "	15
0320	Improving ventilation - Drawing Office	10
0336	Safety guards presses	100
0346	Supplementary Heating F Shop	30
0348	Rivetting Equipment - F Shop	50
0351	Weldfume Eliminators	100

<u>ASF NO.</u>	<u>DESCRIPTION</u>	<u>% H&S</u>
0356	Benches and clothes lockers	100
0363	Atmosphere monitoring equipment	100
0371	High frequency chamfering tool	60
0379	Youngmans staging	100
0380	Railtrack Maintenance & Tool	20
0401	Replacement Chairs (Safety Inspection)	100

REVENUE EXPENDITURE

0621	Radiant Heaters	50
0629	100 Timber Pallets	50
0630	Cleaning Wash Stations/Toilets	50
0631	Radiant Heaters	50
0635	Housekeeping	50
0636	Conversion from oil to gas (less fumes)	50
0638	Grinding Machine C Shop	50
0642	Forklift Truck Lighting	100
0645	Windbreak and Safety Barrier	100
0647	Removal of feral cats	100
0649	Crane Klaxon Hooters	50
0655	Repairs to racking (stores)	100
0658	Safety Equipment - medical supplies	100
0659	Gas Conversion	10
0664	Fire Fighting Equipment	100
0665	Photo Electric Guards - Press Brakes	100
0668	Supply of Electricity - external stores	50
0669	Movement of materials	50
0672	Fire Extinguishers - external stores	100
0675	Shot Blast Dust Extractors	50
0676	Safety Barriers for Space Heaters	100

<u>ASF NO.</u>	<u>DESCRIPTION</u>	<u>% H&S</u>
0679	Shop Transit Bogies	20
0681	Electrical Alterations - Drawing Office/ Canteen	75
0684	Roof Light Shading (Machine Shop)	100
0688	Heat Exchangers	10
0689	Saw Dust Cyclone Machine	100
0691	Drilling Spindle Guards	100
0693	Gas Supply (for Heating) Stores	100
0695	Stock Movement Stores	80
0697	Blower Heaters G1	50
0702	Blower Heaters (Bolt Stores)	100
0712	High Bay Light Fittings	20
0726	Roof of Power House	100
1638	Replacement Steam Condense Return	50
1639	Yard Drainage	50
1641	Clearance of Cellars - fire hazard	100
1646	Repairs to roadways	50
1655	Roof Glazing Repairs - G Shop	50
1661	Speed Restriction Ramps (Works Car Park)	100
1668	Clearance and Fencing to Brook Course	100
1671	Steel Re-Inforcement to crane gantry	50
1672	Repairs to Yard Gulley and drains	100
1681	Speed Restriction Ramps (Staff Car Park)	100

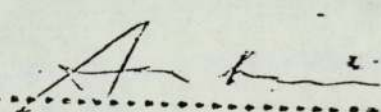
L.T.E. NORTHERN LINE CONTRACT.
ELECTRICAL TESTING BY G.E.C.-A.E.I. LTD.

A Prescribed Electrical Test Area has been allocated at the West End of Shop B, Bay 3, for the purpose of carrying out Electrical Tests on L.T.E. Coaches.

To ensure that maximum Safety Precautions are maintained during the testing period the co-operation of Production Supervisors is requested to ensure that the following Safety Procedure is rigidly adhered to:-

1. On the application for a "Sanction to Test Permit" by G.E.C.-A.E.I. Ltd., Production Supervisors will be requested to withdraw all Personnel together with their tools and equipment from the coaches to be Electrically Tested.
2. The Test Area will then be fenced off with white tape, a system of Red Flashing Warning Lights together with Warning Notices and Fibreglass Protective Barriers will be fixed in position where coach electrical equipment is exposed.
3. Upon completion of the above procedure the Company's Electrical Engineer's Department will then issue the Sanction to Test Permit to the G.E.C.-A.E.I. Ltd. Authorised Tester in charge, from which time only Personnel directly concerned with the testing will be allowed in the Prescribed Test Area.

4. Upon completion of Testing or if Testing is suspended, the Sanction to Test Permit will be cancelled and a "Permit to Work" will be issued to the Area Budget Centre Foreman after the Electric Power Supply fuses have been withdrawn, the isolator locked off and the key held by the Company's Electrical Engineer's Department and all other Safety Precautions relaxed. Only then will other Trades Personnel be allowed onto the Coaches.


.....
G.E. Canham,
Production Director.

FOR INFORMATION ONLY
S.B. Holliwell, Esq.
D.B. Whitehouse, Esq.

JKT/JW.
10/1/72.

Mr. F. Smith.

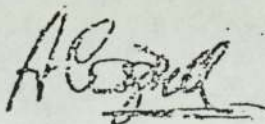
Mr. Smith will you please assist G.E.C.-A.E.I. Ltd. in positioning and fixing the fibreglass guards.

WORKS SAFETY NOTICEELECTRICAL TESTING ON ROLLING STOCK

A prescribed Electrical Test Area has been allocated at the west end of 'B' shop, 3 bay, for the purpose of carrying out electrical tests on L.T.E. coaches. When testing is being carried out, the area will be fenced off with white tape and red flashing warning lights with warning notices fixed in position.

In view of the large voltage being used the possibility of serious, or fatal accidents occurring is very high. It must be clearly understood, therefore, that unauthorised personnel must not enter the coaches whilst testing is in progress.

Consequently we have to inform you that disciplinary action will be taken against unauthorised employees who are found inside the test areas whilst testing is in progress.



A. Cognell

Industrial Relations Officer

Circulation to:

All Foremen - their notice boards
Mr. G. E. Canham
Mr. E. D. Marklew
Mr. J. K. Tomlinson
Mr. A. J. Thomas
Mr. C. Davis
Mr. W. Hale
Mr. E. Barnes G.E.C./A.E.I. Limited.



L.T.E. C77 Surface Stock Contract, High VoltageElectrical TestingPROCEDURE

A prescribed electrical test area has been allocated at the west end of Bay 2 Shop G centrally situated inspection pit, for the above mentioned tests.

Before any test is undertaken the following precautions will be brought into effect:

1. A fixed barrier will be erected, completely enclosing the two car unit for testing. This barrier will be fitted with red flashing lights, and warning notices displayed. Also, additional barriers will be positioned within the inspection pit at either end of the test unit.

2. Traction fuses and main shoe fuses will be withdrawn, prior to commencement of the test.

3. Only authorised personnel such as are listed, are permitted inside the test area, and then, only by permission of G.E.C. Tester in Charge

- | | |
|-------------------------|-----------------|
| A. Two (2) Electricians | (G.E.C.) |
| B. Two (2) Inspectors | (L.T.E.) |
| C. One (1) Inspector | (Metro-Cammell) |
| D. Two (2) Pipe Fitters | (Metro-Cammell) |

4. During the course of the test, no person shall attempt to enter the inspection pit within the test area, without express permission from the G.E.C. Tester in Charge

5. This procedure must be strictly adhered to, and deviation will not be tolerated.

cc: Mr. G.E. Canham.
 Mr. A.J. Thomas. ✓
 Mr. A.E. Barnes.
 Mr. D.A. Heayel.
 Mr. A. Jones.
 Mr. F.H. Smith.
 Mr. J. Pudge.
 Mr. S. Jones.
 Mr. E. Singleton.
 Mr. G. Powell.
 Mr. H. Hughes.
 Notice Boards.
 File.

METRO-CAMMELL
 PERSONNEL DEPARTMENT
 - 8 JUL 1977
 RECEIVED

S. Marshall
 Mr. S. Marshall.
 Fire and Safety Officer.

HEALTH & SAFETY POLICYDRAFTSAFETY PROCEDURECode:Subject: Electrical Testing of L.T.E. Cars

A prescribed Electrical Test Area has been allocated at the West End of G1, for the purpose of carrying out electrical tests on L.T.E. cars.

To ensure that maximum safety precautions are maintained during the testing period, the following safety procedure must be rigidly adhered to:

Procedure

- i) Test Area is to be used only by G.E.C. personnel, and is 'Out of Bounds' to all other Production personnel at all times. (Exceptions see v below).
- ii) On application for a 'Sanction to test permit' by G.E.C. Traction, the test area gates will be closed and Red Flashing lights switched on, together with display of warning notices.
- iii) Upon the completion of the above procedure the Company's electrical engineers department will then issue the 'Sanction to test permit' to the G.E.C. Ltd authorised Tester-in-Charge, from which time only personnel directly concerned with the electrical testing will be allowed in the prescribed Test Area.
- iv) Upon completion of testing, the 'Sanction to test permit' will be cancelled. The 600 v.d.c. supply will be isolated and locked off, the padlock key of the isolating switch being held in the electrical engineers department.
- v) On rare occasions, however, it may be necessary for Metro-Cammell personnel to enter the test area. They will only do so with the sanction of the G.E.C. authorised Tester-in-Charge, and only when testing is not in progress and the Red Flashing warning lights are switched off.

The above procedure should be strictly adhered to at all times.

METRO-CAMMELL LTDHEALTH AND SAFETY POLICYSAFETY PROCEDURE

Code:- I2

Subject:- ENTRY TO COMMISSIONING AND TEST AREA 'I' SHOP

In order to ensure that only authorised personnel gain entry to the test area of 'I' Shop, the following procedure will apply.

This procedure does not apply to the east-end of the building where testing does not take place. A safety barrier will divide the shop and entry to the east-end will not be restricted, access being gained either through the roller shutter doors or the personnel door along the south-side of the building.

Procedure:-

(A) Personnel Required to Work in Test Areas

- i) All personnel required to work on any of the test roads will in the first instance report to the reception area.
- ii) If that person is approved to enter the area, (approval being given by the Departmental Manager), then an authority card will be issued, and the persons named entered into a log book alongside the number of the card together with the date and time of issue.
- iii) The authority card will gain the person entry through the security door, by means of the electric security lock, and into the main test area. The card will then be clipped to the lapel for all to see.
- iv) If a test is in operation the person must gain entry through the locked gate of the test road in question as set out in Procedure I1 "High Voltage and Pressure Testing".
- v) Where testing is not taking place, the individual will be able to gain free entry to the test road in question, entry gates being open.
- vi) Authority cards must be displayed for all to see at all times.

vii) Upon leaving the test area the authority card must be surrendered to the receptionist and the time noted in the log.

(B) Visitors and Personnel not Required to Work in Test Areas

- i) A similar procedure will apply but in this case entry to the test road may not be required. A safety corridor between the test area and the east-end of the building will allow visitors to observe the shop without entry to the test roads.
- ii) If the receptionist is uncertain as to the issue of authority cards to visitors etc., he/she will contact the Departmental Manager by telephone to ascertain the necessary information.
- iii) Where large parties of visitors or VIP's are involved, special safety arrangements will supersede the above but these must have the approval of the Fire and Safety Officer who would be in attendance at the time of the visit.

(C) Testers and Full-Time Departmental Staff

- i) Testers-in-Charge and others authorised by the Company, (including the Departmental Manager and his assistants) will be issued with an authority card at the commencement of each working day and will display and retain that card until they leave the department for the day. They need not surrender the card each time they leave the building but the reception log must be maintained in the normal way.
- ii) A list of such authorised personnel will be approved by the General Manager and be kept in the Reception Office.

NB Any person found climbing over safety barriers will be subject to disciplinary action unless the incident occurred in an emergency situation.

1980

METRO-CAMMELL LTDHEALTH AND SAFETY POLICYSAFETY PROCEDURE

Code:- I1

Subject:- High Voltage and Pressure Testing

In order to ensure that high voltage and pressure testing of vehicles in 'I' Shop is carried out in a safe manner the following procedure will be followed:-

Procedure

(A) Prior to Commencement of Test

High Voltage Mains Testing

- i) The Tester-in-Charge on each of the three test roads will be responsible for all personnel working within the safety barrier.
- ii) He will ensure that the safety barriers are in position and entry gates locked. Entry gates shall display a warning notice. Only the Tester-in-Charge shall possess a key to entry gates.
- iii) He will also ensure that all personnel working within the barriers are authorised to be there, their names entered in the log book kept for this purpose near the entry gate and that they are displaying an authority card, obtained from 'I' Shop reception (see Safety Procedure I2).
- iv) The Tester-in-Charge on roads 1 and 3 will ensure that fire exit doors are securely locked and the red warning lights above the doors are not showing.
- v) The Tester-in-Charge will check, in, under and above the vehicles to ensure that all non-authorised personnel have evacuated the area.
- vi) Respective area on road under test to be selected on main panel.
- vii) On the high voltage switch being thrown, audible warning will be

given that a test is imminent and this warning will sound for 20 seconds. Flashing lights situated above the test unit and in the respective pit area will also operate.

When the audible warning ceases, there will be a high voltage supply to the unit.

Flash Pressure Test

As above but extra precaution as follows:-

- i) Ensure all personnel are clear of the area and cordon off inside barriers.
- ii) All plugs on road under test to be removed from test boxes and flaps shut. Repeat (vi) and (vii) above.

(B) Once a Test has Commenced

- i) Any person requiring entry to a test area shall summon the Tester-in-Charge for that road who will open the road entry gate by means of the special keys provided, locking the gate again.
- ii) The Tester-in-Charge will then enter the individual's name in the log.

(C) On Completion of Test

- i) The Tester-in-Charge will switch off the supply and return the Castell key to the office.
- ii) All authorised personnel shall be signed off the log kept near the gate.
- iii) Gates will be left open until a further test is about to commence.

NB Any person found climbing over safety barriers will be subject to disciplinary action unless the incident occurred in an emergency situation.

1980

REPORT OF ACCIDENT OR SKIN COMPLAINT INVOLVING LOSS OF TIME FROM WORK

To be completed by Foreman

Name in Full Date

Home Address Bud. Centre

..... Check No.

..... Age

Usual Occupation Married/Single

What was the employee doing at the time of alleged accident

Date & Time Reported National Ins No.

Date & Time of Accident Place Accident Occured

Date Ce ased work Date Returned

Continued Work

Between what hours was employee expected to work on that day, from..... to

How did the accident occur

.....

.....

.....

Continued overleaf if necessary.

Was the injured person doing something authorised or permitted for his work

Was machinery or hand tool involved

Whether in motion by power at the time ,

Name, type and number of machine and part involved

Type of crane or lifting equipment involved

Signed (Supervisor Signed (Dept. Manager)

State Names Budget Centre and Check No.

and address of any Witnesses

What action (if any) do you think could be taken to prevent a recurrence

.....

.....

Signed Foreman
Date: ,

Treatment by Nurse First Aider

TO BE COMPLETED BY WORKS SURGERY

Date Reported

State nature of injury, and if to eye or limb, whether left or right

.....

Whether fatal, severe, or slight.....

If employee is detained at hospital state which

Signed:

Code. Date:

Injury Classification. Type of Accident Location of Injury

HEALTH AND SAFETY POLICY

SUPERVISORS/MANAGERS WEEKLY SAFETY LOG

Name

Week Number 44

ACTIVITY	ACTIVITY INITIATED BY													TOTAL ACTIVITY	TOTAL TIME		
	a	b	c	d	e	f	g	h	i	j	k	l	m				
A Accident Investigation and reporting.																	
B Check on safe operation of plant and equipment.																	
C Implementation of Safety Procedure or Proposal.																	
D Analysis of ideas for safer working practices.																	
E Safety Training.																	
F Provisions of Protective Clothing or equipment.																	
G Housekeeping Inspection.																	
H Enforcement of Safety codes or regulations.																	
I Discussion/Communication on Safety Issues.																	
J Safety Committee Meeting																	
K Consultation/Negotiation on Safety Issues.																	
L Other Safety Activities (Please specify overleaf)																	
TOTALS																	

CODE	ACTIVITY INITIATED BY	CODE	ACTIVITY INITIATED BY	CODE	ACTIVITY INITIATED BY
e	Own Initiative	f	Fire and Safety Officer	j	Works Engineer
b	Other Supervisor	g	Personnel Manager	K	Works Surgery
c	Other Manager	h	Other Senior/Manager Director	l	Safety Committee
d	Employee	i	Factory Inspector	m	Other Influence
e	Shop Steward/Safety Representatives				

METRO-CAMMELL LIMITEDHEALTH AND SAFETY POLICYSUPERVISORS/MANAGERS WEEKLY SAFETY LOGGuidance for Completion

In an attempt to assess the implementation of the Company Health & Safety Policy a number of separate arrangements are being made to measure safety activity in the Company, the Supervisors safety log being one of these.

Your assistance is required in completing the log as accurately as possible and the following suggestions are made to assist you:-

- i) At the end of each day put a tick (in pencil) in any box that corresponds to a safety activity carried out by you that day. It is likely that each day a number of ticks will appear describing the type of activity undertaken (listed A-L) and what initiated that activity (a-m).
- ii) Also at the end of each day total the time spent on all activities to the nearest $\frac{1}{4}$ hr and the total number of activities (both in pencil) in the right-hand columns.
- iii) At the end of the week total the number of activities both horizontal and vertical and the time to the nearest $\frac{1}{4}$ hr and return to A J Thomas, keeping the carbon copy for yourself.
- iv) Should there be any queries regarding the completion of the log, please do not hesitate to contact A J Thomas on Pye 110.

2.11.77

SAFETY REPRESENTATIVES QUESTIONNAIRE

1) What percentage of the employees you represent know you are their Representative ?

less than 25%	25%-50%	50%-75%	more than 75%
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

2) Do you carry out the following functions ?

Regularly Sometimes Never

a) Investigate potential hazards and dangerous occurrences and examine cause of accidents	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
b) Investigate complaints by employees	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
c) Make representation to Management on matters affecting health, safety and welfare of employees you represent	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
d) Carry out inspections	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
e) Talk to Factory Inspector concerning matters of health, safety or welfare	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
f) Receive information from Inspectors	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
g) Attend safety committee or other meetings relating to health, safety or welfare	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

3) Are you afforded time and facilities to enable you to carry out your functions ?

Regularly	Sometimes	Never
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

4) Are you accepted by Management and Supervision as the Safety Representative of the employees ?

Completely	partially	not at all
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

5) Do you believe that you have had any effect upon improving health and safety arrangements in the Company ?

great deal	some	very little	none
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

6) How good are the relationships between yourself and the Supervisors/Management you come into contact with on health and safety matters

very good	good	fair	poor
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

SAFETY REPRESENTATIVES QUESTIONNAIRE

1) What percentage of the employees you represent know you are their Representative ?

less than 25%	25%-50%	50%-75%	more than 75%
<input type="text" value=""/>	<input type="text" value="1"/>	<input type="text" value="1"/>	<input type="text" value="7"/>

2) Do you carry out the following functions ?

Regularly Sometimes Ne

a) Investigate potential hazards and dangerous occurrences and examine cause of accidents	<input type="text" value="2"/>	<input type="text" value="7"/>	<input type="text" value=""/>
b) Investigate complaints by employees	<input type="text" value="9"/>	<input type="text" value="-"/>	<input type="text" value=""/>
c) Make representation to Management on matters affecting health, safety and welfare of employees you represent	<input type="text" value="6"/>	<input type="text" value="3"/>	<input type="text" value=""/>
d) Carry out inspections	<input type="text" value="3"/>	<input type="text" value="6"/>	<input type="text" value=""/>
e) Talk to Factory Inspector concerning matters of health, safety or welfare	<input type="text" value="2"/>	<input type="text" value="4"/>	<input type="text" value=""/>
f) Receive information from Inspectors	<input type="text" value="2"/>	<input type="text" value="4"/>	<input type="text" value=""/>
g) Attend safety committee or other meetings relating to health, safety or welfare	<input type="text" value="5"/>	<input type="text" value="4"/>	<input type="text" value=""/>

3) Are you afforded time and facilities to enable you to carry out your functions ?

Regularly	Sometimes	Never
<input type="text" value="8"/>	<input type="text" value="1"/>	<input type="text" value="-"/>

4) Are you accepted by Management and Supervision as the Safety Representative of the employees ?

Completely	partially	not at all
<input type="text" value="8"/>	<input type="text" value="1"/>	<input type="text" value="-"/>

5) Do you believe that you have had any effect upon improving health and safety arrangements in the Company ?

great deal	some	very little	none
<input type="text" value="1"/>	<input type="text" value="7"/>	<input type="text" value="1"/>	<input type="text" value="-"/>

6) How good are the relationships between yourself and the Supervisors/Management you come into contact with on health and safety matters

very good	good	fair	poor
<input type="text" value="2"/>	<input type="text" value="5"/>	<input type="text" value="2"/>	<input type="text" value="-"/>

REFERENCES

- ALLPORT, G.W. 'Attitudes'. I.C. MURCHISON (ED) HANDBOOK OF SOCIAL PSYCHOLOGY: WORCESTER. MASS. CLARK UNIVERSITY PRESS (1935)
- ARGYRIS, C. 'Personality and Organisation: The Conflict Between System and the Individual'. Harper Bros. New York (1957)
- ASHFORD, N.A. 'Crisis in the Workplace: Occupational Disease and Injury'. M.I.T. Press: Cambridge. MASS. (1976)
- ATHERLEY, G.R.C., BOOTH, R.T., KELLY, M.J. 'Workers Involvement in Occupational Health and Safety in Britain'. International Labour Review. Vol. III (1975): 469 - 482
- BATSON, E., BRASTON, I. and FRENKEL, S. 'Shop Stewards in Action: The Organisation of Workplace Conflict and Accommodation'. Oxford University Press, Blackwell (1978)
- BURNS, R.L. 'Why Not Try Participative Safety' - Supervisory Management, American Management Association New York; March (1969)
- BURNS, T. and STALKER, G.M. 'The Management of Innovation'. London: Tavistock Publications (1966)
- CHAMBERLAIN, E.H. 'Labour Union Power and the Public Interest in the Public Stake in Union Power'. Ed. P.D. Bradley, University of Virginia Press (1959)
- CHARLES, R. 'The Development of Industrial Relations in Britain 1911-1939'. London: Hutchinsons Educational (1973)
- CHILD, J. 'The Industrial Supervisor'. The University of Aston Management Centre Working Paper - Series 33 Feb (1975)
- COYLE, J.R. 'Aspects in the Development of Factory Legislation with Particular Emphasis on the Role of Industrial Relations'. M.S.C. Thesis. University of Aston (1979)
- CLEGG, H.A. 'The Changing Systems of Industrial Relations in Great Britain. Oxford: Blackwell (1979)
- DE FLEUR, M.L., and WESTIE, F.R. 'Verbal Attitudes and Overt Acts: An Experiment on the Salience of Attitudes'. American Sociological Review. Vol. 23 (1958): 667-673
- DENZIN, N.K. 'The Research Act in Sociology; The Theoretical Introduction of Sociological Method'. Butterworths, London (1970)

REFERENCES CONTINUED

- DIEKEMPER, R.F., SPARTZ, D.A. 'A Quantitative and Qualitative Measurement of Industrial Safety Activities'. Journal of American Society of Safety Engineers. December (1970): 12-19
- DIESING, P. 'Patterns of Discovery in the Social Sciences'. Routledge and Kegan Paul (1972)
- DONOVAN REPORT - 'Royal Commission on Trade Unions and Employers' Associations 1965-1968'. Chairman: Rt. Hon. Lord Donovan. Command 3623 H.M.S.O. London (1968)
- DUBIN, R. 'Working Union - Management Relations'. The Sociology of Industrial Relations, Prentice Hall, Englewood Cliffs. New York (1959)
- DUNKERLEY, D. 'The Foreman: Aspects of Task and Structure'. Routledge (1975)
- ELDRIDGE, J.E.T. 'Sociological Imagination and Industrial Life' in Warner, M. (Ed) 'The Sociology of the Workplace'. Allen and Unwin (1973)
- FAYOL, H. 'General and Industrial Management'. Pitman. New York (1949)
- FLANDERS, A. 'The Fawley Productivity Agreements'. London: Faber and Faber (1964)
- FLANDERS, A. 'Management and Unions: the Theory and Reform of Industrial Relations'. London: Faber and Faber (1970)
- FLETCHER, C. 'Men in the Middle: a Reformation of the Thesis'. Sociological Review (1969) 17(3): 341-354
- FOX, A. 'Beyond Contract. Work, Power and Trust Relations'. Faber and Faber (1974)
- FRIEDMAN, W. 'Law in a Changing Society' 2nd Edition. London Stevens (1972)
- GAGE, N.L. 'Handbook of Research on Teaching: a Project of the American Educational Research Association. Chicago. Rand McNalley (1963)
- GEBER, A. 'Safety Reps - Which Way Will the Cat Jump?' Occupational Safety and Health. Vol. 8, No 10 October (1978): 14-15

REFERENCES CONTINUED

- GLENDON, A.I. 'Accident Prevention and Safety - Whose Responsibility?' Occupational Health January (1979): 31-37
- GOODMANSON, C., GLAUDIN, V. 'The Relationship of Commitment - Free Behaviour and Commitment Behaviour: A Study of Attitude Toward Organ Transplantation'. Journal of Social Issues. Vol. 27 (1971) No 4:171-183
- GOULDNER, A.W. 'Patterns of Industrial Democracy'. Routledge and Kegan Paul (1955)
- HALE, A.R., and HALE, M. 'A Review of the Industrial Accident Research Literature'. Research Paper for Committee on Safety and Health at Work M.H.S.O. (1972)
- HAWKINS, K. 'Conflict and Change aspects of Industrial Relations'. Holt, Rinehart and Winston, London: (1972)
- HEALTH AND SAFETY - 'The Safety Representatives and Safety Committees Regulations. SI.500 H.M.S.O. London (1978)
- HEALTH AND SAFETY EXECUTIVE. 'Safety Officers: Sample Survey of Role and Functions'. Discussion Document H.S.E. (1976)
- HERZBERG, F. 'One More Time: How Do You Motivate Employees?' Harvard Business Review Jan-Feb (1968)
- HOWELLS, R.W.L. 'Worker Participation in Safety I: The Development of Legal Rights'. Industrial Law Journal 1 (2) (1974): 87-95
- HUGHES, P.W. 'The Approach of Large Companies to Written Safety Policy and Organisation'. M.S.C. Thesis. University of Aston (1977)
- IRON AND STEEL INDUSTRY 'Supervision - Now and Then'. Industrial Training Service (1980)
- KELMAN, H.C. 'Attitudes Are Alive and Well and Gainfully Employed in the Sphere of Action'. American Psychologist. Vol. 29 (1974): 310-324
- KERR, C., DUNLOP, J.T., MYERS, C.A. 'Causes of Industrial Peace Under Collective Bargaining; A Final Report'. Washington D.C: National Planning Association (1953)

REFERENCES CONTINUED

- KINNERSLEY, P. 'Hazards at Work: How to Fight Them'. London: Pluto Press (1973)
- KOCHAN, A.T., DYER, L. and LIPSKEY, D.B. 'The Effectiveness of Union - Management Safety and Health Committees'. W.E. Upjohn, Institute of Employment Research, Kalamazoo, Michigan (1973)
- LA PIERE, R.J. 'Attitudes v Action'. Social Forces. Vol 13 (1934): 230-237
- LAWLER, E.E., and PORTER, L.N. 'Antecedent Attitudes of Effective Managerial Performance'. University of California, Institute of Industrial Relations, Berkeley (1967)
- LEWIS, D.B. 'Worker Participation in Safety II: An Industrial Relations Approach'. Industrial Law Journal 3 (2) (1974): 96-104
- LIKERT, R. 'New Patterns of Management'. McGraw - Hill Book Co. New York (1961)
- MCKENNA, S.P. 'Accident Attitudes'. Occupational Health 27 (8) August (1975): 330-332
- MCKENNA, S.P. 'The Effect of First Aid Training on Safety: A Field Study of Approaches and Methods'. Ph.D. Thesis, University of Aston (1978)
- MCMILLAN, G.H.G. 'Looking at Problems - A New Approach to Injury Records'. Medical Research Unit. H.M. Naval Base, Davenport. Occupational Health Vol. 32 No 6 June (1980)
- MEADE, J.P. and GRIEG, D.W. 'Supervisory Training'. H.M.S.O. (1966)
- MILLER, D.C. and FORM, W.C. 'Industrial Sociology'. Harper and Bros. New York (1951)
- (THE) NOTIFICATION OF ACCIDENTS AND DANGEROUS OCCURRENCES REGULATIONS S.I. 1980 No 804 (1980)
- OPPENHEIM, A.N. 'Questionnaire Design and Attitude Measurement'. Open University - Heinemann Educational Books Ltd. London: (1966)
- PETERSEN, D. 'Techniques of Safety Management'. 2nd Edition. New York: McGraw - Hill (1978)
- PHILLIPS, M.R. 'SAFETY - What are Statistics Worth? Occupational Health. Vol. 30 No 6 June (1978): 279-281

REFERENCES CONTINUED

- PILNICK, S. 'Participation for Profitability'. Drapers Record - July (1977): 15-16
- PILNICK, S. 'Management Must Change Now'. The Grocer. June (1977): 7-8
- POWELL, P.I., HALE, M., MARTIN, T. and SIMON, M. '2000 Accidents: A Shop Floor Study of their Causes'. National Institute of Industrial Psychology. London: (1971)
- RAFFEL, S. 'Matters of Fact'. Routledge and Kegan Paul. London: (1979)
- REGAN, D.T. and FABIO, R. 'On the Consistency Between Attitudes and Behaviour: Look to the Method of Attitude Formation'. Journal of Experimental Social Psychology. Vol. 13 (1977): 28-45
- 'ROBENS REPORT' - 'Safety and Health at Work'. Report of the Committee 1970 - 1972. Chairman Lord Robens. Vol. I. Command 5034. Vol. II. Selected Written Evidence H.M.S.O. London: (1972)
- 'SAFETY REPRESENTATIVES HANDBOOK'. Transport and General Workers Union (1978)
- SAUNDERS, M.T. 'The Measurement of Safety Performance in a Selected Group of Manufacturing Industries'. M.S.C. Thesis. University of Aston (1979)
- SENNECK, S.R. 'Over 3 Day Absences and Safety'. Applied Ergonomics 6 (3) (1978): 147-153
- SHEPARD, H.A. 'Changing Interpersonal and Intergroup Relationships in Organisations'. In March, J.G. (Ed). Handbook of Organisations. Chicago. Rand McNally and Co (1965)
- SHIPP, P.J. and SUTTON, A.S. 'A Study of the Statistics Relating to Safety and Health at Work'. Research Paper for Committee on Health at Work. H.M.S.O. (1972)
- SLICHTER, S.H., HEALEY, J.T. and LIVERNASH, E.R. 'The Impact of Collective Bargaining on Management'. Brookings Institute (1960)
- SIMMONS, R.G. 'The Role Conflict of the First-Line Supervisor: An Experimental Study'. American Journal of Sociology. Jan (1968): 482-495

REFERENCES CONTINUED

- SIMPSON, W. 'Successful First Year for Safety Representatives Regulations'. News Bulletin No 42/79 H.S.E. Nov (1979)
- TARRANTS, W.E. 'Applying Measurement Concepts to the Approval of Safety Performance'. Journal of the A.S.S.E. May (1965): 15-23
- THOMPSON, N. 'A Study of the Training Needs of Supervisors within Metro-Cammell; With Respect to Safety'. University of Aston. B.S.C. Report (1979)
- TRAVERS, R.M.W. 'An Introduction to Educational Research' 3rd Edition. McMillan (1969)
- VAN DALEN, D.B. 'Understanding Educational Research'. McGraw Hill: (1962)
- WALTERS, D.R. 'The Development of Worker Involvement in Health and Safety at Work'. Unpublished Thesis. University of Nottingham (1978)
- WEBB, E.J., CAMBELL, D.T., SCHWART, R.D. and SECHREST, L. 'Unobtrusive Measures: Non-reactive Research in the Social Sciences'. Chicago: Rand McNally (1966)
- WEBB, S. and WEBB, B. 'Industrial Democracy'. London: Longman Green and Co (1902) First Published (1897)
- WEBER, A. 'Bureaucracy and Freedom'. Modern Review (1948)
- WIKCER, A.W. 'Attitudes v Actions: The Relationship of Verbal and Overt Behavioural Responses to Attitude Objects'. Journal of Social Issues. Vol. 25 (1969) No 4: 41-78
- WOODWARD, J. 'Industrial Organisation: Theory and Practice'. London: Oxford University Press (1965)
- YIN, R.K. 'The Case Study Crisis - Some Answers'. Administrative Science Quarterly. Vol. 26 March (1981): 58-65