CONTROL AND CONSENSUS
IN ORGANISATIONS

A Study of Supervision in a Car Assembly Plant

by

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ABSTRACT

The research looks at organisational conflict and control within a body of supervisors and engineers in a car assembly plant. It develops a two-fold focus. The first involves testing a model of behaviour for predicting the characteristics of lateral organisational interaction. The second - developed in greater depth - examines some interactional and bureaucratic aspects of control.

The original research objective was to make a contribution to the conventional organisation theory paradigm stressing managerial decision making, namely the development of a causal model of inter-departmental conflict using regression analysis of questionnaire responses. The objective subsequently changes as a result of the unexpected, non-significant correlations obtained in empirical testing. The attempt at an explanation of this result leads to lateral conflict being reinterpreted as an integral part of the process of organisational control.

An alternative theoretical perspective is outlined, which sees in organisations a mechanism for controlling employees' effort and skills. This theoretical change accompanies a more descriptive method, using quotations from recorded depth-interviews in addition to structured questionnaire responses, and completes the change in research design.

Accounts of the systems of production control and the work process of supervisors and engineers now are a necessary preliminary to the discussion of control.

The main part of the study then examines three aspects of organisational control using data from interview surveys. Firstly, it is shown that formal constraints, emanating from higher management and departmental production targets, were accepted as legitimate organisational goals, i.e. were the basis of an overarching belief system embracing even groups otherwise in conflict with the command chain.

Secondly, the subordination of skills and pressure for intensified effort, arising out of inter-departmental interaction, are examined. This process assumes particular importance in the study. It is the basic means of transforming broad organisational goals into operational constraints within the supervisory body. It incorporates both the normative and the technical control of work, and the particular interpretation of inter-departmental conflict with which it is allied forms the link with the original research design.

Finally, the research sees in the selection of appropriate people to positions of authority the major bureaucratic control mechanism, and a central contributor to reproducing the organisation's authority structure.

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Chapter 1

INTRODUCTION: THE RESEARCH STRATEGY

From about the early 1970s, what had been a remarkably unified approach to the study of large-scale complex organisations, in Britain and America, increasingly showed signs of disintegrating. Perhaps the sharpest and most coherent of the criticism aimed at orthodox organisation theory suggested that, in taking for its exclusive focus the areas of contingency critical for business success that lie within management's competence to improve, the dominant paradigm painted a static picture of organisations. It ignored their place in the process of industrialisation, and ignored too one of the central dynamics of organisational development, namely the conflict between employers and workers. The emphasis on efficiency of decision making, it was further, suggested, misleadingly assumed that workers' industrial obedience could be taken for granted, and was insupportable once the control of human effort and skills was recognised to be the cause of industrial conflict. The functionalist perspective that had predominated both in organisation theory and industrial relations - efficiency of decision making in the former and job regulation in the latter - was also said to have gained considerably in plausibility because the subjects were fragmented and developed separately.

Out of this critique, there emerged an alternative approach which saw in employing organisations a control structure; a set of relationships derived and maintained for the purpose of transmitting management's perceptions of the firm's market to its workers. To achieve this development, the classics by Marx and Weber, which provide a theory of bureaucratic authority and the subordination of labour, have been re-appraised, and attention has been focussed on mechanisms including selection, the internalisation of control through socialisation and career, the design of work, and hegemony in the realm of organisation culture.

Of course, the contrast between existing theory and new theory, and the sense in which the change in approach is a true departure, are relative. The control perspective existed in the literature, both in embryo and in developed forms not widely taken up; and the perspective is new only in the sense of being formulated of already existing notions in which the radical elements are made prominent. Nor was the existing body of theory at all homogeneous. Writing on organisations serves very different audiences. Management looks for a practical rationale, and tends to stick with theories that supply one, only changing when changed social conditions bring forth fresh demands. Academics writing chiefly for management have often adopted the concerns of efficiency and goal achievement for their theoretical categories. But an interest in management's problems and a concern with good management have also provided the impulse for some extremely perceptive studies of organisations. And the major studies, conducted during the 1950s and '60s by writers such as Blau, Gouldner and Crozier, were a substantial contribution to the sociology of organisational life. Perhaps the central problem facing any critical development in organisation theory is that of criticising this body of work, while retaining its important insights.

None the less, these reservations should not cause us to lose sight of the fact that a previously dominant paradigm has been quite widely challenged and found wanting. Attempts to provide a replacement show their originality in at least three distinct ways: they include a critique in which existing theory has become the object of analysis almost as much as organisations themselves, issues pertaining to control are taken up now at the level of paradigm, and even if it does not amalgamate with other disciplines, organisation theory increasingly takes cognisance of other disciplines which affect it, particularly industrial relations.

1.1 PROBLEMS OF RESEARCH DESIGN

The research upon which this thesis is based follows a parallel line of development. It too seeks to criticise an explanation of organisational behaviour stemming from the decisions approach, and argues that an explanation locating the work of management and supervision within a structure of control is a better one. But this research contrasts with most of the recent critical literature on organisations in one important respect. It was originally designed within the 'conventional' framework, and its subsequent development towards the control perspective was not envisaged from the outset. This fact had the distinct disadvantage that the writing-up of research had to be redesigned after the research had been completed. But this line of development did have one clear advantage in that an important hypothesis of the organisation theory literature could be tested on its own grounds. Hence, criticism of the established approach could be based on its capacity or lack of capacity to account for empirical findings, rather than on evaluative and theoretical shortcomings.

At the time the research was initiated, there was considerable interest in organisation studies focussing on patterns of lateral interaction within differentiated management bodies. Co-operation and its obverse, conflict, were recognised to be crucial determinents of efficient decision making, as well as being important components of organisational power structures. The study, then, was originally intended as a contribution to these concerns. It aimed to develop and test a causal model of conflict between functional units - specifically inter-departmental conflict - using data from an interview survey.

The subsequent change in the analytical framework adopted came about for two main reasons - and here it is necessary to anticipate our results, at least in a general way. Both the findings and the experience of conducting the

research indicated that our original causal model did not possess the ability to explain determinants of lateral organisational interaction. At the same time on the wider front, theory and research on organisations that focussed on decision making was giving way to the more critical, control perspective. This latter approach, it was discovered, was able to account for the poor predictive power of the model by locating lateral interaction in the broader framework of the control perspective.

Conflict ceased to be the prime concept, and became a starting point for fresh analysis. Thus, modification of the research design turned out to be less a case of abandoning the focus on conflict than of re-interpreting conflict in different terms, namely the control of managerial activity. And because the research focus remained on inter-departmental relationships, data from the original measures still provided the basis of the study.

The research was conducted between 1970 and 1973 in the Halewood assembly plant of the Ford Motor Company.[1] It formed part of a larger project conducted by research workers from the Industrial Sociology Unit in Imperial College, London. The plant at Halewood was initially chosen as the research site because its technology was that of large-scale manufacturing, then of particular interest in the continuing programme of research conducted by the Unit. The theoretical framework developed by the researchers, and particularly by the Unit's director, Joan Woodward, had reached a stage at which interest was centred on industrial technologies where the problems were essentially those of management, i.e. of coping with conflicting demands, of supervising large work forces, and producing under pressure. A study of lateral relationships of conflict and co-operation appeared to be a suitable vehicle for looking at these topics systematically.

The particular research focus also seemed able to accommodate practical considerations. It was thought that the Halewood plant's fully articulated departmental structure would provide a sound basis for a study of lateral relationships. Furthermore, the great pressure to achieve output targets at Halewood and its fragmented system of production control indicated that inter-departmental conflict would represent an important aspect of managerial and supervisory interaction. There was another, more pragmatic reason for the project. Partially funded by the company, the research team was under obligation to provide consultancy of benefit to the production operation in the plant. Given its bearing on the question of efficiency in decision making, a study concentrating on inter-departmental conflict was naturally of interest to senior company management.

Among the differentiated categories of work in Halewood's production administration, it was possible to distinguish a line management co-ordinating the output of departments manned by production supervisors, a separate body of service departments and groups of specialist 'professionals'. Although these were the major ones, they were by no means exhaustive and exclusive categories. Supervision shaded into management at the top of departmental hierarchies, service foremen supervised craft as well as semi-skilled manual workers, senior production engineers supervised only their junior collegues, and a good deal of clerical-type work was involved in monitoring production figures.

This level of differentiation meant that it was difficult to put a common name to the group of occupations involved. For the sake of brevity, they will usually be referred to as 'supervision', although some of the occupations came closer to management, while in others no direct labour was actually supervised. But it seemed important to consider

them as a group, for it was co-ordination of this division of labour that formed the basis of the production operation.

Our samples in the research fairly faithfully represented this structure of occupations. The top management fraction of it was excluded since research was originally focussed at the departmental level, although some general superintendents were interviewed. But the samples did represent grades within the key shop floor departments. Respondents were mostly drawn from the supervisors of manual workers in production and direct services, and from engineers who provided the specialist manufacturing engineering service to production.

The problems of interpretation and coverage that arose when a modified research design and alternative theoretical approach made demands on our data should also be mentioned. Instead of writing up for the ultimate purpose of feeding data into a multivariate analysis, patterns of response had to be described and interpreted in much more detail than was originally foreseen, and fitted into a more complex theoretical framework.

Some issues which would have afforded a more complete picture of the supervisory process as I subsequently came to view it, notably promotion and the nature of supervisory work, were not examined as systematically as they might have been. Selection, as people are promoted within hierarchies, assumes central importance as a mechanism of social control. But while an attempt was made to examine the career patterns of managers after the programmes of interviews had been completed, permission for this was refused. Likewise, the absence of direct observation proved to be a drawback. Under the control perspective, the work of management and supervision is viewed as part of productive labour, rather

than occupying a separate realm of decision making. So analysis cannot go ahead without a detailed knowledge of the work process. For this, methods like participant observation, activity sampling and simply following subjects around would have very usefully complemented data from questionnaires and interviews.

In the event, it proved possible at least partially to resolve these difficulties. A fairly detailed impression of supervisors' work and the selection process to which they were subject was able to be formed by moving between the different kinds of data at our disposal, which included general experience of the plant and observation of its work patterns. A fact which also helped to resolve problems created by the broadened research scope was that the study did not depend only on quantified data. In addition to measures designed to test the causal model of conflict, depth interviews were conducted which allowed respondents to talk about their jobs in their own words, rather than in a structured way. Interview transcripts provided a rich alternative data base, affording a good account of the production system and of the way in which supervisors were affected by immediate technical controls.

Where the structured interview responses proved to be most comprehensive was in tracing organisational belief systems and perceptions of lateral interaction. Again to anticipate results a little, supervisors' work of administering the technical controls of production, it was discovered, involved a crucial normative element. There was a reciprocally sustaining relationship between beliefs and formal controls. However, the realm of beliefs could not be read off as a mere constraint. It was reproduced within the organisation, and so became an important focus of our attention. Similarly, respondents' perceptions of inter-departmental relationships -

originally the cornerstone of our research design - reliably described the work of co-ordinating specialist services. This too turned out to be an important feature of organisational control.

Finally, another problem that gave rise to difficulties in the research was that of access. The greatest problems of access are encountered when research is required to include management consultancy. It is virtually impossible to gain research access to employees in working hours without a trade-off between researcher and management being provided for, and the constraint of having to produce findings that management feels will help solve its problems obviously may distort the topics and methods of research.

The present research carried a clear commitment to study the company's problems. Six reports were written, as well as other tasks (including short research surveys conducted in the Genk and Dagenham plants, and a presentation to a Christmas convention of supervisors), and in return Ford supported the research financially. The extent to which this kind of involvement influences academic research is difficult to guage. Partly it depends on what the researcher is trying to find out. In the present case, it did seem possible to 'seal off' research from previous consulting exercises - indeed, some senior managers were aware that they were 'helping the lads get their PhDs' - although the emphasis at that stage was on a conventional concern of organisation theory, and one which managers thought was relevant for them. The difficulty arising from this commitment was the time it took up. In fact, at one point it seemed that access for the final study might be denied as the company had obtained all the consultancy it then wanted.

A problem of access which may be the most insidious is the way in which the mechanics of research itself can lead to a static approach being adopted. The difficulty of mounting a large research programme in an organisation that comes under great pressure of work means that the researcher must look for periods of calm in which to conduct the research. Management rarely wants academic researchers around when a dispute threatens or during the run-up to a model change, or at other times when things are not running smoothly. Even though consultancy is supposed to examine such problems, management is usually anxious that researchers should not get a 'false picture'.

This problem was much in evidence at Halewood. The main four-week interviewing session had to be put off several times, although we were finally able to squeeze it in between the strikes, production crises and other alerts. The problem is that, even with the benefit of hindsight, and of course the fact that even the most structured data does not 'speak for itself' but must be interpreted, there is a danger that the data collected may define an artificially stable view as the norm.

Although some indication has been given of how this and the other problems of research were tackled, ultimately a judgement of how well they were resolved has to be based on a reading of the thesis. In the remaining sections of this introduction accounts of the research site, data collection and the plan of chapters are given.

1.2 THE PLANT AND THE COMPANY

The motor car assembly plant at Halewood, on the outskirts of Liverpool, was built at a cost of £30 million and went into production in March 1963. At the time this research was being conducted, during the early 1970s, upwards of 8,000 manual workers were employed there, and about 1,100 staff. Of the various production activities - commercial vehicles, engines, foundry, transmissions - it is upon final production, and particularly the car assembly plants, that the fortunes of the company are built. Therefore, Halewood was at the time and remains especially important among the numerous plants that make up Ford's British operation.

Originally, Ford of Britain wanted to expand existing production facilities at its giant plant at Dagenham in east London. But the advantages of building a factory in a region singled out for state development assistance took them to Liverpool. In 1960, there were 27,000 unemployed in the region to provide an eager labour force, and government schemes offered substantial incentives in the form of tax relief and building grants. Also, the 346-acre site that was taken up was ample for the original body and assembly plant and for future expansion.[2]

Diversification to Halewood was an early stage in a major development of Ford of Britain. Dagenham began operations in 1931, and for many years was the centre of the company's final production. But during the 1960s, British production was decentralised to five main locations: shortly after Halewood began production as the second car assembly plant a transmission plant, employing 3,000 workers and producing gear-boxes for all the British plants, was built on an adjacent site; tractor production was

concentrated in the Basildon plant; the Southampton plant, acquired in 1953 from Briggs Motor Bodies, was integrated with an assembly plant at Langly to produce all the heavy commercial vehicles; and the plant at Swansea, acquired in 1969 and expanded to employ 6,000 workers, produces axle assemblies used in the final production plants. In addition, there are smaller production units (responsible for small stampings, machining, castings etc.) at Leamington, Woolwich, Doncaster and Croydon. There is a £10.5 million model development centre at Dunton, employing 3,500 people. And in 1964, a £5 million office complex was opened at Warley in Essex to house 2,000 central staff and become the headquaters of Ford of Europe. Altogether, more than £300 million of new capital was invested by Ford in Britain in the 1960s.

However, in other ways the 1960s were a lean period for Ford of Britain. As well as creating a new pattern of production here, the company was also expanding into Europe. Plants were constructed at Genk in Belgium (this is Halewood's sister plant), at Saarlouis in Germany, and the giant Cologne plant was extended. This growth levelled the status of Ford of Britain, which until then had been Ford's major centre of investment outside the United States. At that time too, the British plants seemed to fare badly in inter-plant comparisons. Halewood in particular was regarded as the 'rogue plant' of Ford of Europe, because its quality and production records were poor as compared with those of other European plants.

Later though, Halewood began to climb the company's league tables, and by 1974 both the Liverpool and Dagenham plants were powerful within the new European structure. In 1978, Ford of Britain, whose comparatively poor productivity and labour record had never prevented profits being made, announced a profit of £246 million. Its performance was apparently good enough to attract investment from Detroit, for in April 1978

the company announced an increase in investment that would take its total investment in Britain to £265 million per year for the next four years. And earlier, in 1977, it was announced that a £180 million engine plant, that will employ 2,000 workers and build engines for the whole European network, is to be sited in South Wales. One newspaper reported that 'the British end of the Ford empire has become the jewel in the Ford crown.'[3] Perhaps this was something of an exaggeration, but it was certainly true that the position of Ford of Britain within the company improved greatly during the 1970s.[4]

1.3 SAMPLES AND DATA COLLECTION

The present study concentrates on the supervisors and engineers who ran Halewood's production departments and the departments providing direct services to production. Within these departments, there were three levels of supervision. For production and service, the levels were foreman, general foreman and superintendent; and for the engineering departments they were engineer, senior engineer and supervisor. Superintendents and engineering supervisors were the heads of department.

Corresponding levels in production and service departments were precisely comparable, as they shared a common pay scale and had similar jobs and general status. But there were differences between these and the engineering departments. Engineers at each level earned a little more, the lowest rank in the engineering departments had no subordinates, and the work of even the senior ranks more closely approximated that of the professional engaged in occupational activity than of the supervisor organising

the work of others. However, jobs at corresponding levels in all departments were sufficiently similar to be grouped in three levels of 'status'.

Represented in the research population were ten production departments, nine service departments and seven engineering departments (see Figure 4.1 below). To simplify matters, the sample was chosen from one shift, and this population is shown in Table 1.1. The engineers here are the total population of those in the plant as they worked only one shift, but most of the other respondents worked two shifts, with a minority working one or three.

TABLE 1.1 The Research Population

	Production	Service	Engineering		Totals
Foremen	126	69	Engineers	63	238
General Foremen	23	21	Senior Eng.	19	63
Superintendents	8	7	Supervisors	7	22
Gen. Sup'tendents	5	8		2	15
	142	105		91	338

The interview and questionnaire schedules for the sample survey, shown at Appendices A and B, gathered information on task variables and inter-departmental relationships. They were checked in a pilot study, and from an examination of these data the suitability of questions was determined and the various scales and factors constructed. Pilot data will not be reported in the research. The pilot sample consisted of only first line supervisors, as these were the largest group within supervision, while the less numerous senior ranks were reserved for the main study. Thirty-three foremen and forewomen made up the pilot sample. They came from two departments, namely Trim Manufacture and Quality Control

TABLE 1.2 The Survey Sample

	Production	Service	Engineering		Totals
Foremen	24 (23%)	19 (28%)	Engineers	19 (30%)	62 (26%)
General Foremen	13 (57%)	11 (52%)	Senior Engineers	8 (42%)	32 (51%)
Super-intendents	7 (83%)	6 (86%)	Super-visors	3 (43%)	16 (73%)
	44 (31%)	36 (34%)		30 (33%)	110 (33%)

Technical Services, and as these were the least central departments to production it seemed reasonable to leave them out of the main study.

The questionnaires were then administered to a randomly selected, stratified sample of 110 male supervisors and engineers. All in this group were given a semi-structured interview lasting about an hour, and a questionnaire to be completed in their own time. Eight of the sample did not return their questionnaires, leaving a total of 102 returned - a 93 per cent response rate. The structure of this main sample is shown in Table 1.2.

Twenty-two departments were represented here: eight from production, seven service departments and seven engineering departments. In order to obtain meaningful numbers in the senior job categories, stratification could not be proportional. So these categories were over-represented, as will be seen from the percentage figures in the table. In most departments, the practice was to include the head of department, and then select at random two general foremen and three foremen.

In addition, materials from a group of interviews

TABLE 1.3 The Depth-interviewed Sample

	Foremen	General Foremen	Super-intendents	General Superintendents	N
Production	7	3	7	2	
Service	4	3	9	2	
	11	6	16	4	37

conducted during the early stages of research usefully complemented the quantifiable data of the sample survey. At this stage, attention was focussed on the senior ranks who could be expected to have a wide knowledge of production. Respondents were not part of a representative sample, nor were engineering staff included.

The schedule, shown at Appendix C, involved questions on the flow of work through the plant, how this was controlled and varied, questions about cost and budget control, and about respondents' relationships with hourly-paid workers. Questions were also included on the sources of pressure and uncertainty in supervisors' jobs, and on their attitudes towards departmental hierarchies and other departments. The interviews, which each lasted between one-and-a-half and three hours, allowed for unstructured responses, which were transcribed from tape-recordings with a view to incorporating quotations from them.

1.4 PLAN OF CHAPTERS

In Chapter 2, following this introduction, the materials pertaining to our original research design are presented. A theoretical discussion of conflict in organisations

and the derivation of a causal model is followed by results of the empirical testing and an interpretation of their significance.

Chapter 3 focusses on the concept of control. No attempt is made to examine theories of control exhaustively. But views are singled out, initially those of Weber and Marx and then of other writers, that are likely to pervade any discussion of control. The views also give the outline of a new research design. Specific research objectives are identified.

In Chapter 4 an account of the Halewood plant's production system is given. While the original emphasis on model-testing required only that the research site should provide a differentiated organisation structure, the change to the approach based on control meant that more detailed knowledge of the plant was required. Indeed, it is not possible to discuss normative and behavioural aspects of control without an understanding of the technical control of production. So this chapter provides an important background, and presents the first part of the analysis of organisational control.

Chapters 5, 6, 7, and 8 present the data from the interview and self-complete questionnaire programmes.

Chapter 5 deals with supervisors' and engineers' perceptions of their work. Respondents' perceptions of tasks in different functional sections, the priorities assigned to various organisational reference groups and respondents' attitudes to workers are used to build an impression of the work process within the body of supervision.

Chapter 6 looks at the evidence reflecting what is

perhaps the focal outcome of the operation of control mechanisms, namely that organisational goals should secure acceptance as predominant beliefs. The chief 'formal' sources of pressure on supervisors - from departmental operating targets and from their bosses above them in the hierarchy - were examined to see whether they were interpreted as a system of organisational beliefs.

Chapter 7 pursues this connexion by examining the informal control of their work activity that supervisors and engineers themselves created through inter-departmental interaction. The structure of inter-departmental relationships is first described, before looking at particular categories of relationship in detail. The latter material indicates how the pressure to intensify work was transmitted through informal lateral interaction, and the way in which specialist skills were controlled and integrated, as well as the limits of the legitimacy conferred upon central goals.

In Chapter 8 data indicating another major mechanism of control, namely the selection of appropriate people into positions of authority, are gathered. These deal with the influence commanded by the three ranks in the departmental hierarchies, and with the impact of promotion policies on the skills and personality-types selected for senior posts.

Chapter 9 summarises the different strands of the argument, and reconsiders the main outlines of organisational conflict and control in the particular setting of the Halewood plant.

NOTES

1. The Halewood plant's industrial relations were the subject of Huw Beynon's well known study, Working for Ford (Beynon,1973).

2. For an account of Ford's move to Liverpool, see Beynon (1973), Chapter 3.

3. Victor Keegan, 'Booming Ford to spend £1,000m', The Weekly Guardian, 30 April, 1978.

4. This massive investment was despite the fact that the productivity of Ford of Britain has always been much lower than that in other European plants. The Chairman of Ford of Europe recently calculated that productivity was 15 cars per man year for Ford of Germany and only 7 cars for Ford of Britain - while his figure of 30 cars for Japan was presumably intended to send a shiver down the spines of even the German workers (Frances Cairncross, in The Guardian, 14 February, 1981). However, this does serve to indicate the relatively rapid shifts in the standing of a plant that can occur in a multi-national like Ford. Corporate management have a tendency of pulling out of the hat whatever set of figures suit their current purposes, and strikes in the Halewood and Dagenham plants during 1980-81 led to threats of shifting production to other European plants accompanied by that stress on comparative production figures.

Chapter 2

CONFLICT IN ORGANISATIONS

The topic upon which this research originally focussed was conflict and its obverse, co-operation, between functional units in management. Organisation theorists, particularly in America, have long been interested in managerial conflict. It was a subject closely associated with what is perhaps their major interest, namely the efficiency of organisational decision making. Recognition of 'conflict resolution' as one key pre-condition of efficient decision mechanisms reinforced concern to investigate the effects of differentiation within management.

By the late 1960s, a considerable body of writing on the topic had accumulated. In 1969, a special volume of the Administrative Science Quarterly was brought out on the subject of conflict in organisations, which represented the climax of this interest. In particular, several researchers developed sophisticated causal models purporting to explain the phenomenon of lateral conflict within managerial bodies. Significantly, though, in all but one of these cases empirical tests remained to be conducted.

The initial aim of the present research was similarly to derive a causal model of organisational conflict - specifically inter-departmental conflict. This was to be constructed from a search of the relevant literature, and additionally the aim was to put it to a rigorous empirical test.

2.1 THEORETICAL BACKGROUND

A prominent theme in writings on the subject attributes lateral managerial conflict to antecedent conditions in the relationship between partner units, including the structure of the relationship, characteristics of the units, and the organisational context. The manifest characteristics of conflict include competitiveness and bargaining, the concealment, restriction and distortion of information, evasiveness and dishonesty in dealings with others, unwillingness to modify formal procedures, the constant appeal to superordinates and feelings of hostility and suspicion. A high level of manifest conflict is also thought to have a debilitating effect on organisational performance. It can impair the quality of decision making, lower adaptability to change, overload top management with petty responsibility and increase the psychological strain on people.

Taking first the issue of causation, studies have advanced a variety of specific causes of conflict. For example, service relationships involving an asymmetrical exchange, whereby one department depends upon the contribution of another, are likely to be difficult to co-ordinate. The department dependent on the service usually is alone held responsible for performance and so finds itself continually badgering the other for service; the dependent department often increases the level of conflict by exaggerating the seriousness of its need as a tactic of pursuading the other department to provide the service; and generally there is a lack of collective incentive to cooperate (Dalton, 1959). Secondly, mutual dependence on scarce organisational resources, such as equipment, services and finance, is a source of competition which can result in conflict (Walton and Dutton, 1969).

Thirdly, there are several models of conflict which have grounded their explanations firmly on incompatibility in the goals or interests motivating different activities in organisational

units. Goal incompatibility is perhaps the most direct consequence of the division of labour within management. When the organisation's total task is divided into sub-tasks, the corresponding division into sub-units responsible for the tasks enables people to focus on the single or few goals prevailing in their own areas of responsibility. But inevitably, goal differentiation engenders the possibility of conflict. Quality versus quantity, a high standard of engineering versus low cost, and routine production runs versus the flexibility required to meet demands from a changing market represent characteristic clashes of interest. Thus, Simon (1964) saw in organisational structure a more or less integrated network of constraints. There is a degree of agreement over the priority of constraints, but also a degree of conflict because of individual managers' inability "to deal with the entire problem as a set of simultaneous relations, each to be treated symmetrically with the others." Similarly, both Dutton and Walton (1966) and Schmidt and Kochan (1972) focussed on goal incompatibility as the ultimate source of conflict.

Finally, several studies suggested an important qualification to these relationships. As a necessary precondition for conflict to occur, the inter-unit relationship must attain a minimum level of intensity. That is, contact must be fairly frequent, and must involve issues important for at least one of the partner units (Dutton and Walton, 1966; Schmidt and Kochan, 1972; Walton and Dutton, 1969).

In addition to causes of conflict which originate within the structure of work relationships, another notion, which might be termed the 'communications' approach, attributes lateral managerial conflict to the differences in attitudes held by various groups of managers. Differences in perceptions of purpose in work, in the priorities awarded to different goals, in individual 'styles' and 'orientations' render cooperation difficult and conflict likely as a result of breakdown in communication. Heterogeneity

in a wide variety of variables has been identified as the cause of conflict, among which the following are important examples: value systems (Druckman and Zechmeister, 1973), interpersonal orientations (Lawrence and Lorsch, 1969), systems of attitudes (Pondy, 1969), and 'personal and interpersonal structures' (Corwin, 1969).

More diffuse predispositions and orientations have also been singled out. For example, Dalton (1959) showed that line managers valued stability highly because their capacity to meet output targets was impaired by disruptions in market demands, while staff managers were cast in a favourable light by rapid change with which they were better equipped to cope. Other researchers have called attention to the conflict between short-run and long-run time orientations (Lawrence and Lorsch, 1969), and the inclination towards a quantifiable system of managerial control versus reliance on professional responsibility (Walton and Dutton, 1969).

One can readily see that perceptual differences producing variation in attitudes can be explained in terms of underlying structures of conflicting interests, so that the difference between the two approaches is not fundamental but one of emphasis. However, there remains a problem of causal sequencing. The following question arises: are attitudinal differences to be regarded merely as a consequence of structural variation, and therefore as a dimension of conflict itself, or are they in some degree independent, perhaps as variables intervening between structural causes and manifest conflict? Views on this have varied. Walton and Dutton (1969) regarded 'low trust, suspicion, hostility' as 'attributes of conflictful lateral relationships'. Conversely, Lawrence and Lorsch (1969) used the general term, differentiation, which simply refers to the 'internal differences' between organisational units, to conflate the distinction between structure and perception. They distinguished four dimensions of

differentiation - degree of internal structuring, time orientations, goal orientations and interpersonal orientations - showing them to be correlated with conflict, but not specifying to what place in a causal sequence each factor might be assigned.

The major application of this theoretical framework to the issue of organisational performance and decision making efficiency is based on the related notions of potential conflict and conflict resolution. While a potential for managerial conflict resides in the structure of many organisational relationships, manifest conflict need not result. None the less, the formal authority of the command chain cannot be assumed to be automatically effective in reconciling the interests of potentially antagonistic groups. Conflict has to be resolved by the application of conscious effort, appropriate interpersonal skills and special organisational design.

Corwin (1969), for example, distinguished between factors such as organisational size and degree of specialisation that create a potential for conflict, and factors that may influence its resolution, such as participation in the authority structure and style of supervision. Similarly, Lawrence and Lorsch (1969) found that while better performing firms were relatively highly differentiated, they also employed elaborate integration techniques for managing conflict. They included the setting up of distinct departments and groups for the purpose of mediating between other departments, special teams set up to deal with tasks likely to cause conflict, and clear appeals procedures. Moreover, the managers whose function it was to integrate other departments embraced personal orientations that combined those of the units between which they mediated. They tended to adopt an open style of confronting difficulties and to have considerable influence within the organisation. (See also Thompson, 1959; Katz, 1964; Walton and Dutton, 1969; Thomas and Bennis, 1972; and Schmidt and Kochan, 1972.)

A methodological enigma resides in the notions of potential conflict and conflict resolution. Conflict may manifest itself periodically and be resolved, or it may be tackled on a continuing basis by anticipating problems as they arise. Evidence of conflict resolution may be found in the observed activities of managers, and it may be inferred from other factors mentioned above (managers' status, inter-personal orientations etc.), but it has to remain an assumption that conflict would have erupted but for its being successfully resolved, even when a potential for conflict (or what seems to be a potential) continues to exist in the structure of particular relationships. In any case, what is actually observed by the researcher is a high level of differentiation (or some other hypothetical cause of conflict) together with a low level of conflict and a correspondingly high level of integration between units.

Lawrence and Lorsch (1969), the only researchers to have conducted an empirical study focussing on conflict and its resolution, proceeded as follows. They first established a general relationship between differentiation and conflict.

> ... we did in fact find a very clear inverse relationship between the magnitude of differences in orientations and structure between pairs of departments and the effectiveness of integration between them... The more similar two departments were in structure and in the orientation of their personnel, the more effective was the integration between them. Conversely, the more different two departments were in these attributes, the more difficulties they were having in achieving integration. (The relationship was statistically significant in five of the organisations at .01 and in the sixth at .05, using Spearman's coefficient of rank-order correlation.) In essence, the degree of differentiation among departments within each organisation was antagonistic to the quality of integration obtained.
>
> (Lawrence and Lorsch, 1969, pp. 47-8)

Here, taking relations between departments as the unit of analysis, a significant negative correlation between integration and differentiation obtained in the six organisations in their sample. Then Lawrence and Lorsch used another basis of data analysis. Comparing mean level of differentiation between departments with mean level of integration in each organisation, they found that the two better performing organisations in their sample sustained relatively high levels of both differentiation and integration, while the remaining middle- and poor-performers displayed either high integration and low differentiation or vice-versa.

In other words, while the better performing organisations still experienced antagonism between differentiation and integration (and the negative correlation between the two variables still held here), these organisations managed to elevate both the activity of integration and the conditions of differentiation to relatively high levels. Thus, Lawrence and Lorsch felt safe in assuming that the potential conflict inherent in a condition of high differentiation was being continually allayed by mechanisms of mediation.

2.2 A CAUSAL MODEL OF CONFLICT

The concepts and variables identified in these and similar studies provided the basis for the original design of our research. Its underlying rationale held that behavioural consequences of the organisational division of labour would be causally related to the level of conflict or co-operation characteristic of the relationships between organisational sub-units. Having just outlined the theoretical background, it is now appropriate to examine in more detail the variables actually employed in the present study.

At the time the research was initiated, the most important of the above themes were treated in Lawrence and Lorsch's well known study, Organisation and Environment (Lawrence and Lorsch, 1969), to which we have just made several specific references. No attempt was made to precisely replicate their study, nor would this have been possible at our research site. But our aim was to test the essential relationships in their model. Lawrence and Lorsch's research suggested a method of studying interdepartmental conflict, namely examination of causal links between the division of labour and conflict, and their model had the advantage of being the only one to have been tested empirically, so its constituent variables were quantifiable and operational.

Lawrence and Lorsch were concerned with the problem of two opposing consequences of the division of labour within managerial bodies. Although differentiation between the tasks managers perform is both the basis of top management's control of the management structure and enables jobs to be performed efficiently, differentiation invariably has the consequence of increasing conflict, thereby reducing the level of integration within the management structure as a whole. Thus, the dilemma lies between the expertise and conflict arising out of specialisation.

Differentiation in the work performed within organisational sub-units, Lawrence and Lorsch argued, produces distinct 'orientation patterns'. They distinguished three such patterns: interpersonal styles, typical orientations towards goals and time usage. It was in the differences between these patterns that conflict was seen to originate. For instance, managers with relatively long-term time perspectives probably find it difficult to integrate their ideas and practices of work with those of managers with more immediate time perspectives. Differences in

goals and inter-personal styles similarly produce tension that can manifest itself as conflict. Although stressing differences in attitudes, and therefore the failure of communication likely, Lawrence and Lorsch also recognised structural conflict in goals and priorities as underlying causes of conflict.

In addition to the analysis based on the work of Lawrence and Lorsch, the literature search suggested another group of relevant variables, namely the structure of inter-departmental relationships. This may influence the basic relationship between differentiation and conflict, in the sense of setting limits to the potential for conflict. For instance, the extent to which conflict or cooperation will actually be encountered well might depend upon the intensity of a particular relationship, or the degree of dependence involved in it. Measures of several such variables comprising the structure of relationships between departments were therefore included in the research.

Finally, in the questionnaires administered some other variables, in addition to these basic ones, were included. Some of these simply seemed useful to measure in the general context of the research. Other measures that gave problems in the pilot study had to be modified, and factor analysis used to construct attitude factors sometimes gave rise to slightly different combinations of items from those originally intended.

The process by which the final group of variables was arrived at was subject to all of these influences, and will not be described in detail for each one. However, the variables that were finally included provided the research design, which intended to examine the behavioural and structural factors influencing inter-departmental conflict.

The variables for which indicators were included in the research may be grouped under three headings: those relating to (i) the consequences of the division of labour for personal orientations and perceptions; (ii) the structure of relationships between task-differentiated sub-units; and (iii) the dependent variable, namely conflict or cooperation inherent in the relationships between the sub-units. These may be further specified as follows.

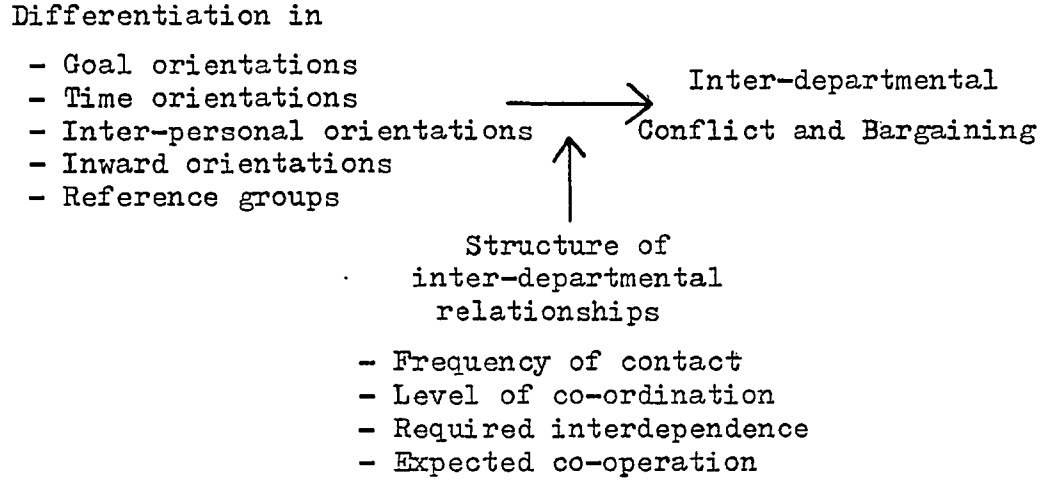
(i) The three personal orientations defined by Lawrence and Lorsch (1969) were measured, i.e. goal orientation, time orientation and inter-personal orientation. In addition, two other personal orientations were included, namely the extent to which people were 'inward looking' towards their own personal goals, and the importance attributed to particular people and sources of information for respondents' judgements of their performance.

(ii) There were four aspects of the structure of inter-departmental relationships for which indicators were included: the frequency of contact between people in different departments, the level of co-ordination, required interdependence, and the expected degree of co-operation.

(iii) Finally, the dependent variable, inter-departmental conflict and its obverse, co-operation, was measured in terms of a continuum between situations of complete co-operation and complete breakdown in the relationships between departments. In addition, a question was asked concerning the degree of bargaining which occurred between people in separate departments. This seemed useful to include as a second dependent variable and additional dimension of inter-departmental conflict.

These variables were related in a causal model that

FIGURE 2.1 The Causal Model of Conflict



formed the basis of the research design. The model can now be depicted, although it was not completely specified prior to the analysis of results - Figure 2.1. The main idea at this stage was to include a comprehensive range of variables, and to decide the basic form of their probable relationship.

It is worth calling attention to the method used to test the model, since it departed from that employed by Lawrence and Lorsch, and in so doing incurred both advantages and disadvantages.

A special kind of multivariate analysis was developed to make use of the opportunity presented by Halewood's network of inter-departmental relationships. In it, relationships between departments formed the units of analysis - i.e. the relationships were the cases upon which information was collected and analysed, rather than individual respondents or departments as would usually be the case. Thus, mean scores attributed to the dependent variable, conflict, were correlated with the differences between mean departmental orientation and task scores. For example,

the mean time orientation scores of two departments in regular contact were calculated, the difference calculated, and this coefficient correlated with the mean of respondents' judgements of the level of conflict or co-operation between them.

With a sample drawing from 22 departments, there were about 230 possible inter-departmental relationships (and therefore cases). In fact, only about 180 relationships were reported, and of these only about 100 were deemed to be strong relationships - i.e. were reported by at least four of the six respondents in each partner department. But these 100-odd relationships provided sufficient cases upon which to base a multivariate analysis.

The major advantage of this method lay in the rigour with which a causal sequence was able to be analysed. The method used by Lawrence and Lorsch, by comparison, was based on relationships between a relatively small number of divisions. They looked at six organisations in different industries, using a sample drawn from four different managerial divisions - production, research and development, marketing and original research - in each organisation. They correlated the differences in attitude orientations of respondents in the different divisions with the conflict reported between them, so that only six categories of relationship (the six possible links between the four divisions) could be studied in each of their six organisations.

The major disadvantage of our method was its failure to replicate the breadth of Lawrence and Lorsch's study. Its obvious drawback was that research was confined to one plant and the function of production, while Lawrence and Lorsch were able to include plants in different industries and a variety of management functions within the plants. Thus, it was clearly possible that differentiation between departments on Halewood's shop floor would not provide the degree of difference between orientations required to significantly correlate

with conflict. A functional breakdown of sorts was possible within our sample - direct production, service and production engineering departments were respresented - but these groups would have provided only three inter-group relationships, and so could not be used as a basis of analysis.

Thus, the aim of the research was to provide a rigorous, if limited test of the differentiation-conflict hypothesis.

2.3 DIFFERENTIATION AND CONFLICT

In the event, first tests of the causal model indicated that there was no detectable relationship between differentiation and conflict. When measures of inter-departmental conflict and bargaining together with the three major dimensions of differentiation (i.e. differentiation in departmental orientations towards goals, time, and inter-personal attitudes) were entered in a step-wise, multivariate regression, regression coefficients were all very small and none proved significant (Table 2.1).

There are two possible reasons for these results. One of them is the presence of a flaw, or flaws, in the research design. This possibility has to be seriously considered in the present case, and if possible refuted, since we were testing a relationship already sustained in other research. If either the structure of the causal model (i.e. the variables included and their relationships to one another) or the operationalisation of variables were faulty, this could account for the failure to sustain the anticipated relationships.

While such possibilities cannot be discounted, considerable care was taken in designing the research to ensure its validity. Several new measures were developed, but the core of the model

TABLE 2.1 Regression of Inter-departmental Conflict on Differentiation

	Regression Coefficients	
	Inter-departmental Conflict	Inter-departmental Bargaining
Goal orientation	.10	.01
Time orientation	.00	-.00
Inter-personal orientation	-.06	.02

- i.e. the relationship between inter-departmental conflict and the three independent variables - was based on the measures developed and tested by Lawrence and Lorsch. Furthermore, all measures were subjected to a pilot test; and in the chapters below in which the data are examined in detail, both construct and criterion validity are evident. The measures will be shown to provide sensible results in the general context of the research, and the specific groups of supervisors included in the sample allowed tests of significance to be run on variables.

If the validity of the questions and scales can be accepted, it remains to examine the second reason for the central relationships of the causal model not being sustained in testing, namely that there were no relationships in fact. In order to consider this possibility, it is necessary to start by examining in greater detail the variables in the model. Now, the independent variables - these were the descriptive dimensions of the different organisational units and types of task - appeared to be relatively straightforward. What did seem to be problematic, however, was the precise meaning to be attributed to the dependent variable, inter-departmental conflict. The notion of conflict as it was put to respondents in interviews, and the significance they attached to activities labelled conflict need to be located in

the broad context of organisational control. Thus, an enquiry into the 'failure' of the causal model should take this key variable as its starting point.

2.4 CONFLICT RE-EXAMINED

Given the limitations of our research setting compared with that employed by Lawrence and Lorsch, it was originally anticipated that a problem might arise as a result of low levels of differentiation between departments, whereas the pressure of work involved in car production had led us all along to assume that conflict in relations between departments would be commonly encountered and reported. In fact, the reverse obtained. There was considerable variation in levels of differentiation, particularly in the time and inter-personal orientation scales.[1] But in the responses to the questions on inter-departmental conflict, only a small amount of conflict was reported - an unexpected result for us.

Table 2.2 below shows the question used - Lawrence and Lorsch's original measure of inter-departmental conflict[2] - and the distribution of responses to it. From respondents' ratings of a total of 851 relationships between departments, in only 16 per cent of responses were any of the unfavourable categories endorsed, and in only five per cent were the two categories indicating a serious breakdown of relationships endorsed.

Time and again in an interview a respondent would confirm the great pressures of work in his job, perhaps adding that other departments did not provide the level of co-operation he needed, but that on the whole work relationships were not all that bad. Things were roughly as they should be, given the constraints of production, even if they fell far short of the ideal.

TABLE 2.2 Inter-departmental Conflict

	Endorsements (%)	(N)
1. Sound. Full Unity of Effort is achieved	13	113
2. Almost Full unity	20	167
3. A bit better than average relations	23	196
4. Average relations. Sound enough to get by	28	237
5. A bit of a breakdown in relations	11	93
6. Relations are bad	4	32
7. Could not be worse.. Serious problems exist that are not being solved	1	13
	100	851

Although the small amount of conflict reported meant that the responses to this question did not fall into a normal distribution, the absense of any correlation between differentiation and conflict remains to be explained. For it is still possible, even with the low level of conflict recorded in responses, that a significant correlation could have emerged. However, the major categories of relationships did not obey the rationale of the model. Interdepartmental relationships in which respondents in partner departments shared similar orientations were not marked by especially low levels of conflict, and in relationships between highly dissimilar departments, conflict was not markedly more evident. And while there were a few relationships in which differentiation was linked with conflict and manifested itself along the cleavages of the division of labour, much as was anticipated in the causal model, such relationships were not characteristic of those in the sample. Some illustrations may help to clarify these points.

One relationship that did conform with the model was that between the Press Shop and Tool and Die Maintenance. Much conflict in this relationship was reported by respondents in both the departments, and their orientations and task attributes were markedly different, as we should expect from production supervisors and skilled tradesmen. However, there were special characteristics to this relationship. Firstly, the tooling service to the Press Shop was probably the most difficult to

provide of all the services to production. In addition to the complexity of the service itself, twenty-four hour production in the Press Shop meant a very high pressure of work with which to contend andlittle time in which the presses could be shut down for routine maintenance. Secondly, the work ethic of the turners and millers in the toolroom was relatively highly developed. These time-served trades have a long pedigree in British industry, and many supervisors in this section were older men whose memories stretched back to the days when automation and de-skilling in the engineering industry were far less advanced than they are now. This work ethic, with its orientation towards relatively long-term planning, was behind much of the resentment of production demands for quick service. Finally, tooling was the only service under the direct control of a production manager - the Press Shop manager in this case. Consequently, an important source of the dispersal of conflict, namely its referal up the hierarchy, could not be called upon by the tooling supervisors. They well may have felt particularly vulnerable to the demands of Press Shop supervisors because of this.

In the tooling-production relationship, then, there were several specific causes of conflict not found elsewhere in the plant. Furthermore, conflict was expressed by respondents in precisely the terms anticipated in the model. It was manifest as communications difficulties and differences in priorities, with production men failing to appreciate complex engineering problems, and the toolroom engineers lacking the urgency required by production.

However, for the majority of inter-departmental relationships in the plant no link existed between differentiation and conflict. For example, the relationships between the production and manufacturing engineering departments, which comprised about one-third of the sample, were reported to be

only a little less co-operative than the mean, although the differences in tasks and personal orientations of people in these departments were the most extreme in the sample. Similarly, there was no less conflict reported between production departments themselves than in most other inter-departmental relationships, even though these men shared common orientations.

Despite the fact that conflict was rarely interpreted by respondents in terms of a breakdown of relationships, our impression that conflict was an ever-present fact of life in the plant remained true. The research data provided ample evidence of this. One example worth calling attention to is a measure of respondents' attitudes towards other departments. This was a scale formed of five attitude items, tapping the degree to which respondents thought people in other departments to be co-operative, concerned with integrative goals and free in passing on information. The distribution of responses, from the survey of 110 supervisors, showed a marked tendency for respondents to regard unfavourably the help and assistance obtained from people in other departments - Table 2.3.[3]

The table is interesting - and there were other measures providing similar results[4] - since it creates an apparent paradox. If the responses in this table (which dealt with inter-departmental relationships in general) are compared with those in Table 2.2 above (which dealt with individual inter-departmental relationships), it will be seen that the two distributions of responses are oppositely skewed. While the two questions are about interdepartmental conflict, the different ways of phrasing them produced those contrasting patterns of response. Respondents seemed to be saying that other departments co-operated poorly on the whole, but the sum total of departments individually considered produced an assessment of 'better than average' unity.

TABLE 2.3 Attitudes towards other Departments

	Respondents' Endorsements
Very favourable	1
Favourable	19
No feelings either way	13
Unfavourable	60
Very unfavourable	11
	104

The explanation of this apparently contradictory result lies at the heart of the problem of interpreting organisational conflict. The unfavourable reaction of respondents when asked general questions about the extent to which other departments co-operated and provided information reflected their feelings about the control system, of which pressure from other departments was an integral part.

However, when they were asked about their relationships with specific departments, respondents were being asked something rather different. The sense of the question then being asked was whether work relationships, as they perceived them, were subject to change, and hence whether the legitimacy of the managerial control system might be open to question. If respondents replied unfavourably to a question asking how well a particular department did the job it was supposed to do, they would be suggesting that the structured demands on the department in question could, and perhaps should, be changed - that engineers could spend more time on the shop floor, that production men could relax the pressures they placed on services, that maintenance could devote less of their energies to planned repairs and so be on the spot when breakdowns occurred, and so on. As we saw, when asked the specific question about inter-departmental relationships, as a rule

people indicated approval of the existing state of affairs, the question in Table 2.2 receiving a favourable response on the whole.

This point is stressed because it is important to recognise the fact that high work pressure and the uncooperative attitudes to which it gave rise stemmed from the department-based system of production control. Interested solely in their own targets, supervisors might circumvent procedure in order to press a request for service, and might try to create space for themselves by resisting such pressure from others. But there was little evidence of the kind of conflict likely to be evaluated as a breakdown in relationships.

2.5 CONCLUSION

The discovery that no relationship was detected between differentiation and conflict naturally gave pause for thought. Why was such a widely discussed and seemingly logical hypothesis not sustained by empirical testing? In seeking an answer, the first point that must be emphasised is the very limited empirical evidence that has been advanced in support of models of organisational conflict. This is all the more surprising given the decidedly positivistic slant of the models, and the impression many convey of having been undertaken as a preliminary to empirical research. With the notable exception of Lawrence and Lorsch (1969), who put their differentiation-conflict hypothesis to the test, models of organisational conflict are mostly abstract sets of hypotheses that have not been tried out in organisational settings.

In this chapter, we took the general notion that the division of labour in management causes conflict, and sought to broaden the base of its empirical validification by testing it in a context that differed from the one employed in the major existing test conducted by Lawrence and Lorsch. We used the questions to measure differentiation and conflict that they developed, but varied their research design, using multivariate analysis of inter-departmental relationships where they had used a simple ranking of relationships between organisational divisions. We found that the hypothesis was not sustained. Two questions therefore remain. Firstly, if the original research design had been adhered to at our research site would the hypothesis have been sustained? And secondly, would it have been possible to find another measure of conflict that would have given positive results? The two questions amount to the general query: did a relationship in fact exist that was missed? Answers must needs be speculative, but can be attempted.

The first question is fairly easy to deal with. Halewood, and indeed the Ford Motor Company, were not the kinds of organisations in which it would have been possible to conduct a study of inter-divisional relationships. Ford, in common with many multi-national companies, controls its divisions through a corporate headquarters, a structure which prevents divisions from being placed in direct contact with each other. So, for example, Lawrence and Lorsch's examination of the relationship between production and original research, or production and sales, could not have been replicated in an organisation like Ford. But replication was not essential. There is little doubt that the differentiation-conflict hypothesis was intended to apply equally to inter-departmental and inter-divisional relationships. Lawrence and Lorsch advanced what they clearly believed to be a theory generally applicable to lateral relationships in organisations. Similarly, Walton and Dutton (1969), who were responsible for another major initiative in this area, made it clear that their model was

> ... postulated as applicable to all lateral relations between any two organisational units (departments, divisions, sections and so on) that engage in any type of transaction, including joint decision making, exchanging information, providing expertise or advice, and auditing or inspecting.

Secondly, The results we obtained using Lawrence and Lorsch's question on conflict indicated that while there was much evidence of conflict in the plant, respondents were unwilling to define it as a 'breakdown' in relationships, as did their (Lawrence and Lorsch's) original question. However, it seemed that little would be gained by speculating what results a different question might or might not have produced. Lawrence and Lorsch, after all, did detect a strong relationship between differentiation and conflict using the question. A more practical course of enquiry seemed to be to examine how their question was interpreted by the Ford sample.

The conclusions arrived at may be summarised as follows. Lawrence and Lorsch assumed a mechanical - and on the surface, very sound - relationship between conflict and integration, namely that the two were opposed poles of a continuum. Conflict was implicitly equated with a disintegration or 'breakdown' of inter-departmental relationships, and this was contrasted with the condition of unity, cooperation and integration. Yet organisational structure in Halewood seemed to involve a dynamic connexion between integration and conflict. There was much conflict (if pressure, resistance and resentment can be so defined), but respondents did not view it as a breakdown in work relationships. In their minds, conflict and integration were in some degree compatible. Although the level of inter-departmental conflict was high, it did not amount to a dis-integration of lateral relationships, and for this reason the situation was not modelled by the differentiation-conflict hypothesis.

It is not claimed that the negative findings of our research disprove the existence of a relationship between differentiation and conflict in all circumstances. Neither is it appropriate to advance a definitive critique of the causal model. Wider variation in managerial functions and a higher incidence of unmediated relations between functions than was presented in Halewood well may have produced findings along expected lines. None the less, Halewood was not a unique organisational setting. And without intending them to be representative, our results suggest what might be found among managers and supervisors working in similarly constraining production technologies. What can be claimed for the results, then, is that they indicate a restricted application of the general differentiation-conflict hypothesis to certain kinds of organisations, activities and levels of decision making, and supply a corrective to the notion that the hypothesis may be generalised to all organisational settings.

What was most striking in the above analysis was the extent to which conflict was regarded by respondents to be one of the prime characteristics of work relationships, while only rarely translating into a perceived disintegration of relationships. The reason, quite simply, was that conflict in inter-departmental relationships was manifest as pressure, and within the context of the organisation's control system pressure was regarded at bottom as legitimate. It might be resented and resisted, but it was all part of the job of making motor cars.

It was further apparent that lateral interaction furnished a crucial form of control over supervisors' effort, skills and motivation. The division of labour governing their jobs forced supervisors to intensify each others' labour through the application of and resistance to pressure, in addition to the pressure they encountered from senior line management. While it may have been possible to modify the understanding of conflict implied in our model, appreciation of this point, it seemed, called for the research to take a rather different approach, one reserving pride of place for the issue of the control of managerial behaviour. In order to make sense of our data and findings, it is necessary at this point to make a fresh start - to return to the literature first of all, and look at some of the concepts that have been prominent in discussions of organisational control, and subsequently to examine in detail mechanisms of control in the particular organisational setting with which Halewood presents us.

NOTES

1. These findings may be checked in Chapters 5 and 6 below.

2. Lawrence and Lorsch (1969: 259-60)

3. Items forming this scale were part of the battery of Likert items in Appendix C, pp xix-xvi. Individual items and correlations within the item-cluster are as follows.

OALLIR1 In this firm the cooperation between departments that can help each other is very good.

OALLIR2 The departments that I rely on for help and assistance do not give me as much support as they should.

OALLIR3 A supervisor in this company is easily able to get the help from other departments he needs for doing his job.

OALLIR4 You cannot always trust supervisors from other departments to be open about everything.

OALLIR5 Supervisors from other departments often keep information from you if it is in their interests to do so.

ATTITUDE TOWARDS INTER-DEPARTMENTAL RELATIONSHIPS

	OALLIR1	OALLIR2	OALLIR3	OALLIR4
OALLIR1				
OALLIR2	-.47			
OALLIR3	.44	-.40		
OALLIR4	-.19	.28	-.32	
OALLIR5	-.37	.43	-.36	.54

As the attitude items were not specified in Table 2.3, the original scale, which ran from 'strongly agree' to 'strongly disagree', would make little sense. Instead, a 'favourable-unfavourable' scale has been inferred from the original. Thus, for instance, the 'very unfavourable' response category in Table 2.3 would correspond to a reply of strong disagreement with one of the favourable attitude items.

4. The research also examined other attitudinal evidence of conflict not reported here. One such example concerned whether interdepartmental relationships were perceived to be cooperative or 'forceful' in nature. A factor analysis of 16 items tapping these dimensions produced a coherent emphasis on departments typically adopting forceful methods of getting what they wanted from each other. (This question was adapted from the scale in Lawrence and Lorsch, 1969:265-7.)

Chapter 3

CONTROL IN ORGANISATIONS

Anyone wishing to understand the mechanisms whereby social activity is controlled in organisations must begin with the work of Weber and Marx. It has been natural for social scientists to compare the writings of the two theorists, and although the relationship is a complex and ambiguous one, when all is said there remain deep divisions between them. Marx focussed on an essentially economic problem, namely the cycle of capital accumulation, while Weber was more concerned with the institutional structures of modern industrial society. None the less, the similarities in approach between Weber and Marx are also striking. Both provided a comprehensive analysis of capitalist society, seeking its causes of development in the dynamics of production.[1] Both gave full credit to capitalism's unleashing of enormous productive powers, but at the same time saw deep-rooted conflict between rational and irrational forces. Both too distinguished modes of production as specific modes of the appropriation of labour within distinct institutional forms.

Writing at the time when the German state machine was newly established and industrial concentration was far along the road of transforming competitive industry into twentieth century monopoly capitalism, Weber was among the first to recognise one of the most significant features of capitalism, namely that social labour is mostly conducted in institutions which are at once part of wider society and insulated from it. When the simple hierarchy of the small firm ceased to be capable of organising the increasingly large labour forces and new professional skills, the bureaucratisation of control, Weber saw, became a basic idiom of work organisation. In the transition to new forms of control, market forces were drawn within the firm and the allocation of collective labour increasingly influenced by internal processes of improvement and selection.

While changes in structure of the firm continue to reflect the transformation of production, the shift to bureaucratic forms of control in the modern firm has been relative and uneven. Weber himself left open the question of how important the chief bureaucratic controls of selection and socialisation are in manual workforces. On the one hand, he 'deliberately confined' his analysis of rational-legal authority to 'office bearers' and the 'administrative organ' (1964: 329-41). But when defining authority generally, he remained clear that serf and proletarian labour occupy an imperatively co-ordinated relationship resting on 'belief in legitimacy' (1964: 324-29). More recently, writers have taken up both lines of argument. Some stress that for manual workers, the direct power of the labour market and the simple hierarchy has to a considerable extent given way to forms of control embedded in the social structure and technical organisation of the firm.[2] Moreover, salaried workers, particularly at the lower levels, are increasingly subject to methods improvements (Braverman, 1974). Others think that workers still fall outside the bureaucracy, and have a minimal relation to the firm. Manual workers, they stress, mostly remain hourly-paid, contract labour, no matter how far they are prepared to extend loyalty to their employer; and forms of control resting on fear of dismissal and close supervision persist (Littler, 1978). The middle line offered by Gintis (1976) is that in corporate capitalism the exigencies of work organisation 'shade into' bureaucracy.

Although Weber was preoccupied with 'structures of domination' necessitated in the modern bureaucracy, he did not derive them from a notion of economic exploitation. Marx, by contrast, viewed capitalism as a system of production that was at once a system of exploitation. He focussed on the confrontation between capital and labour, and raised the question of administrative control as an active force in production.

> As the number of the cooperating labourers increases, so too does their resistance to the domination of capital, and with it, the necessity for capital to overcome this resistance by counter-pressure. The control exercised by the capitalist..is consequently rooted in the unavoidable antagonism between the exploiter and the living and labouring raw material he exploits. (1970: 313)

The change from extraction of absolute to that of relative surplus-value represented a qualitative development in relations of production, namely penetration of the class struggle into the labour process itself. On this point, Marx distinguished the 'formal' from the 'real' control of labour. Capitalism inherited a labour process in which merchant capital and usurers' capital existed alongside independent production by artisans. Gradually producers came under the subordination of capital through such intermediate forms as modern domestic industry and the early factory system. Independent craftsmen became wage labourers, dependent on the capitalist for the means of production and for access to markets of sale. But at this stage labour retained its craft nature. Because the artisan retained his skills, labour had yet to yield direct control of the production process. This Marx referred to as the formal subjugation of labour.

The real subjugation of labour arose, Marx suggested, when capital began the process of transforming labour itself from its archaic forms into forms that complied with the demands of surplus value production.

> I call the <u>formal subordination of labour to capital</u> the form which is based on absolute surplus-value, because it is distinguishable only <u>formally</u> from the anterior modes of production...
>
> Real subordination of labour to capital or the specifically capitalist mode of production... we have shown in detail that with the <u>production of relative surplus-value</u>, the whole of the real form of the mode of production is modified, so that we are now concerned with the <u>specifically capitalist</u> mode of production... As the forces of production of society develop (or the productive power of labour), they are socialised and become directly <u>social</u> (collective), as a result of cooperation, the division of labour within the workshop, the use of <u>machinery</u>, and, in general the transformations which the production process undergoes as a result of the conscious <u>application</u> of the natural sciences.[3]

Real subordination represented the extraction from the worker of a greater amount of work in a given time, the 'closer filling up of the pores of the working day'. During Marx's time, the Factories Acts of the 1840s and '50s were the greatest impetus to intensification of labour. They placed a compulsory limit on the length of the working day, and so encouraged employers to raise the productivity of labour in order to compensate for the absolute reduction in hours.

In the study of work organisations, then, there exists an important bridge between the theories of Weber and Marx, and recent literature has drawn from them in order to construct a comprehensive account of organisational control.[4] Bearing in mind Marx's analysis of the labour process and Weber's theory of bureaucracy, with its capacity to give full play to the incorporation of differentiated occupations in modern organisations, the value of combining their insights is easily appreciated.

Finally, the strengths of the one theorist do not necessarily reflect weaknesses of the other. True, Weber was concerned in the main with the institutionalisation of instrumental rationality through the spread of techniques such as capital accounting and the kind of profit-making that characterised modern industry, but he remained quite clear about the fact that it was the penetration of production by capital that gave capitalism its distinct historical form. He was careful to distinguish modern capitalism from 'politically oriented capitalism', which includes speculation, colonial exploitation and merchant adventure, enterprises which have been 'common all over the world for thousands of years where the possibilities of exchange, money economy and money financing have been present' (1964: 278-80). Weber was also well aware of the tendency of capital to continually revolutionise the production process, and the conflict

with labour this engenders - a theme central in Marx's work.

By the same token, while Marx's two-class model might appear as unable to accommodate the phenomenon of bureaucracy, finding no place for administrative, technical and professional employees apart from the rather unsatisfactory notion of their role as 'agents of capital', he in fact envisaged in the labour process an operation expanded to include this essential labour. At the same time as they are divided into skilled and unskilled, intellectual and manual, superordinate and subordinate labour, workforces still co-operate even if under compulsion. The fractions are all parts of the 'collective labourer'; they are exploited and contribute surplus-value for the reproduction of capital. Therefore, the capitalist's search for surplus-value not only invokes the direct exploitation of manual workers, but develops this collective workforce with the aim of raising its productivity (see also Elger, 1979). And for Marxists too the social and economic mechanisms controlling professional labour, and labour that controls other labour, merit attention.

3.1 MANAGERIAL BELIEFS

Weber's analysis of bureaucratic control rests on his account of the motives for accepting rational authority. He conceived of the motives in terms of social action oriented to rules. The appeal of both traditional and charismatic types of authority pervade a society, but bureaucratic authority is only partially based on a sense of what is reasonable and appropriate behaviour in that wider social context. In addition, bureaucratic authority is embodied in a delimited set of rules.

The reasons individuals have for becoming attached to rules may, at the least, be the result of simple expediency on their part or of the exercise of coercion on them, but this is usually insufficient to ensure the long-term stability of attachment. In addition, there must be a feeling of solidarity with the rules. Weber suggested that the appeal of ideas inherent in a body of rules successfully legitimates bureaucratic order when the ideas are held as <u>beliefs</u> by employees.

> ... custom and personal advantage, purely affectual or ideal motives, do not, even taken together, form a sufficiently reliable basis for a system of imperative coordination. In addition, there is normally a further element, the belief in legitimacy. No system of authority voluntarily limits itself to the appeal to material or affectual or ideal motives as a basis for guarateeing its continuance. In addition, such a system attempts to establish and to cultivate the belief in its legitimacy. (1964: 325)

Belief in the legitimacy of bureaucratic order is supported by the whole system of action of an organisation, as well as by an organisation's relationships to its markets and publics. Particular beliefs portray what is distinctive about organisational life and what is common about it. Thus, the distinctive culture of an organisation - the range of skills deployed and their associated work ethics, the groups which are deferred to, the patterns of authority etc. - is reflected in the beliefs to which employees are committed. Such beliefs in turn derive much of their attraction from the wider belief in the honest fulfillment of contractual agreements. Belief in non-appropriation of the bureaucratic post, in the right of superordinates to expect obedience, in efficiency and fair-dealing are all essential to the continuance of organised work in capitalist society.

Belief in the legitimacy of bureaucratic rules, Weber suggested, has two principal forms, namely the recognition of expert knowledge and recognition of the worth of bureaucratic rules themselves. In the former case, professional or expert knowledge relies for its authority on the immediate appeal to reason, since long training and acceptance by peers is evident and proficiency should be demonstrable. The authority of the administrator and official, by contrast, rests more on a sense of duty to the rules (or at least habit), although ultimately rules should themselves fulfill a deeper, substantive logic.

To some extent, the expert and the administrator rely upon contrasting types of authority - and moreover types which can come into conflict should they have to co-exist. The expert, concerned with performance of a concrete task, is often at odds with the official, pursuing abstract goals of low cost and tidy administration. Still, in the main senior office encompasses a mixture of the two types. People move up the hierarchy by welding expertness with conformity: the 'solid' and 'accomplished' manager is both able and acceptable.

Moreover, expertise never in practice develops independent of the goals and culture of the organisation. With his notion of 'knowledge growing out of experience in the service' (1964: 339), Weber stressed specialised knowledge as a basis of legitimacy, but also that knowledge is itself produced. An organisation's definition of expert knowledge is a crucial component of its body of rules, and one peculiar to itself. Rules ensure that selection for senior office reflects superior ability - but an ability defined in terms of the work of that organisation. Expertise is thus closely bound up with the exercise of authority, in a way that combines the 'universal accessability of office' with the exclusiveness of senior groups.

Sources of tension also exist within particular sets of managerial beliefs. Weber's ideal type methodology deserves closer attention in this context. While the heuristic value of

types derives from the coherence they enable us to project onto complex empirical phenomena, types also serve an explanatory purpose. It was in this sense that Aron (1957: 72) spoke of Weber as an 'oppositional thinker', one who developed an analysis of social forms in terms of the integration of contrasting types. Beliefs are real social phenomena that encapsulate different pure types, and the tension between types often provides an impulse to change. Here Weber defines certain components of beliefs, incorporating the distinctions between his three types of authority.

> ...the basis of every system of authority, and correspondingly of every kind of willingness to obey, is a belief, a belief by virtue of which persons exercising authority are lent prestige. The composition of this belief is seldom altogether simple. In the case of 'legal authority', it is never purely legal. The belief in legality comes to be established and habitual, and this means it is partly traditional... Furthermore, it has a charismatic element, at least in the negative sense that persistent and striking lack of success may be sufficient to ruin any government, to undermine its prestige. (1964: 382)

Thus, for Weber beliefs were complex and invariably potentially dynamic. Normative pressures and willing compliance, he suggested, are rarely fully in step and changes in the behaviour people regard as worthwhile or obligatory can quickly cause previously authoritative relationships to be questioned.

The notion of belief combines two related features of organisational control, namely operationalisation and hegemony. Organisational structures of authority do not in themselves determine how authority will actually be exercised. While abstract notions of efficiency and profit-maximisation infuse organisational rationality, the mechanisms used to

operate must involve a system of beliefs if managements are to control performance and justify their decisions on a continuing basis. Beliefs thus help to transform abstract administrative criteria into workable rationales (McNeil, 1978).

Since organisational rationales are always about concrete ends and means, they are invariably multiple and conflicting, and legitimation becomes crucial when we take into account organisational differentiation. Where disparate interests must co-exist, the key element in the legitimation process lies in the emergence of an overarching, central system of beliefs, which engages the acceptance of the majority at the same time as it expresses ruling interests. The persistence of beliefs, and consequently of a level of consensus, should not be mistaken for an automatic harmony of interests. For Weber, the acceptance of beliefs in capitalist society involved

> domination by virtue of 'legality', by virtue of the belief in the validity of legal statute and functional 'competence' based on rationally created rules. In this case, obedience is expected in discharging statutory obligations. This is domination as exercised by the modern 'servant of the state' and by all those bearers of power who in this respect resemble him. (1964: 79)

On this point, Weber shared common ground with Marxists. They have long stressed that the economic contradiction between employing and labouring classes involves both conflicting interests and joint engagement in production. Notions of hegemony in the realm of culture and the incorporation of conflicting ideas systems serve to explain how this working arrangement is sustained.

A similar notion was advanced by Raymond Williams. With his analysis of dominant culture, he pointed out that the groups in society whose interests rule do not merely thrust

alien ideas on unwilling subordinate groups. Ruling groups appropriate beliefs which have always formed the basis of cooperation - loyalty, fairness, thrift, productivity - a fact which reflects the dual nature of social formation, at once mode of production and mode of exploitation.

> ... in any society, in any particular period, there is a central system of practices, meanings and values, which we can properly call dominant and effective... what I have in mind is the central, effective and dominant system of meanings and values, which are not merely abstract but which are organised and lived. That is why hegemony is not to be understood at the level of mere opinion or mere manipulation. It is a whole body of practices and expectations; our assignments of energy, our ordinary understanding of the nature of man and of his world. It is a set of meanings and values which as they are experienced as practices appear as reciprocally confirming. It thus constitutes a sense of reality for most people in the society; a sense of absolute because experienced reality beyond which it is very difficult for most members of society to move, in most areas of their lives... The processes of education, the processes of a much wider social training within institutions like the family; the practical definitions and organisation of work; the selective tradition at an intellectual and theoretical level: all these forces are involved in a continual making and remaking of an effective and dominant culture.
>
> (Williams, 1973: 8-9)

In addition to the division between employer and worker, there are very many differences in occupation, function and level of reward within non-manual, salaried groups in modern organisations. Highly differentiated categories of work and levels of reward contribute varying degrees of commitment to organisational goals. Trust within the top corporate group is

all but guaranteed, since its members are products of an exhaustive selection process. They benefit from great rewards of money, prestige and interesting work, as well as fringe benefits like superior medical treatment and preferential share purchase, which protect them from economic insecurity. But in the middle and lower ranks of the hierarchy such commitment to the organisation is more in doubt. While the supervisors, technical specialists, employed professionals etc. occupying these positions can expect greater rewards from employment than manual blue- and white-collar workers, they are still an indispensible part of surplus-value production. Control of their labour is part of the employers' problem of 'real subordination', hence delegation of authority to them is hedged about, their decision powers limited. Indeed, the fragmentation of occupations in this range - which are increasingly prominent as industrial processes become more complex and capital intensive - is the prerequisite for clear lines of authority to penetrate them.

Because industrial administration has developed in complexity far beyond the simple hierarchy, modern industry displays many of the features of the classic, white-collar bureaucracy. One of them is that administrative employees find themselves in positions of dependency and under constant supervision. With professional, technical and supervisory labour therefore beliefs take on an added significance. These employees - as much the objects of control as they are in control of other people and processes - should hold beliefs legitimating managerial authority, rather than mere orientations to work. But because they are held only partially 'on trust' and under normative constraint, their motivation is relatively unreliable.[5] Meeting the organisational demand for control cannot be read-off from their inclusion within the administrative staff. Hence a belief system has to be reproduced by specific mechanisms of organisational control.

The capacity of corporate groups to command this process determines whether their goals will be accepted as the consensual ones. If they achieve this, a central dominant system of beliefs will forge the link between the divisive consequences of the control imperative and the possibility of a legitimate organisational authority.

3.2 MANAGERIAL ACTIVITY

Turning from systems of managerial belief, a useful point at which to begin to look at actual managerial activity is the notion of formal and informal spheres of action. Many studies of organisation, particularly empirical case studies, have shared a common emphasis on the interaction between formal and informal.

For example, Gouldner (1954) stressed the importance of social responses to impersonal rules, and saw both response and rule as equally important parts of the 'total' organisation. His analysis of 'industrial bureaucracy' distinguished the varying content of rules, types of enforcement and motives sustaining acceptance, as well as the conditions under which legitimacy of an order is suspended. Bureaucratic patterns in which compliance needs to be enforced were distinguished from genuine acceptance of an order because interests were widely represented by it, and these in turn were distinguished from compliance with the form rather than the essence of rules.

Similarly, in his famous study of government recruitment agencies, Blau (1955) stressed the importance of competition between employees, showing it to be an important mechanism

intensifying their productivity. He too devoted the major focus of his research to the interaction between formal and informal. Indeed, Blau saw in the 'daily operations and interpersonal relationships' the central dynamic of organisational change, namely the continual modification of formal procedures by social practice.

Finally, Fox (1971) noted that while the categories formal and informal are useful heuristic types, they may misleadingly give the impression of two systems. Fox preferred to speak of the 'social organisation of work'.

> There is only one organisation - people cannot behave in two different ways at once. The uniformities of behaviour which they actually follow constitute the social organisation. (1971: 33)

Patterns of social behaviour reflect the stresses of differentiated and contested rules. Informal rules of practice can bind behaviour just as strictly as formal rules, while the codes of sub-groups such as craftsmen, professionals and other self-regulating occupations, as well as trade unions, are no less imperative. In short, the 'official' rationale competes with the rules of groups enjoying varying degrees of recognition from the organisation's formal hierarchy (Fox, 1971: 26).

The relationship between formal and informal spheres has many aspects. In particular, conflict between formal constraint and both collective and individual informal behaviour has long provided the lines of sociological enquiry. It echoes what is perhaps the archetypical concern of sociology, namely the individual 'making out' in an established, sometimes coercive social structure, and the informal tactics he and she develop to cope with externally imposed control. (See, e.g., Goffman, 1968.)

Weber (1964: 320) regarded such conflict as a major source of instability in bureaucracies. Rational authority imposes unwelcome constraints on many individual interests and ambitions, so that resentment and resistance 'become the normal thing.' Similarly, Bendix (1956: 244-7) saw in bureaucratisation the increasing estrangement of employees from their work. When they seek to modify this encroachment, in one way or another they attempt to appropriate their office, and this resistance further prompts the penetration of formal authority.

> The strict separation between office and incumbent, between the position and the employee, is an ideal condition which is rarely achieved, in practice, especially with regard to salaried employees and skilled workers. Incumbents endow their work performance with personal qualities that range from dispensable ideosyncracies to untransferable and often indispensible skills, so that some measure of identification of the employee with his position is unavoidable... managers endeavor to minimise or eliminate this 'silent bargaining' (and thereby to maximise the predictable performance of employees) by the strategic use of penalties, incentives and ideological appeals. (1956: 246-7)

In particular, the 'cultures of resistance', based on informal work-groups or distinctive work ethics or both, have received much attention. The extent to which employees are able to undermine managerial control when they act in collusion is often startling - which is of course the reason for such control invariably being based on tactics of 'divide and rule.' Work-groups are an important resource of those attempting to resist formal pressures. Given the enormous power of the formal hierarchy to dispense rewards and punishments, techniques like output restriction and withholding co-operation depend upon the collective support of fellow employees if protagonists are not to be picked off individually.

This emphasis in industrial sociology goes back to the watershed study of social relations in the factory, Management and the Worker (Roethlisberger and Dickson, 1939). More recently, Salaman (1979: 163-4) has insisted that collective informal action invariably subverts formal authority, posing this as a necessary consequence of informal solidarity and regarding as 'a rather naive, functionalist view' the notion that work-groups may serve to integrate workers into the firm. Similarly, Turner (1975) suggested that

> ... the ideal of formality is diluted or tempered by the informal norms and patterns of behaviour associated with the more direct, face-to-face relationships which also permeate the organization, forming what has been expressively called 'bureaucracy's other face.' (1975: 65)

And Benson (1977) lumped together all forms of conflict in organisations, and attributed to them the force of contradictions. All 'ruptures, breaks and inconsistencies in the social fabric', any 'separation point', all differencies of occupation and interest reflect a 'fundamental social process', which is the contradiction between the 'constructed social world and the ongoing process of social construction.'

To be sure, since formal rationality tends not to admit the existence of conflict, then conflict must be an informal event involving face-to-face interaction. Much of the considerable research effort that has gone into examining the relationship between the two spheres has stressed the manipulation of formal control systems by sub-groups in defence of their autonomy. Thus, informal groups well may exist to support 'covert bargaining', having largely had to forego the legitimacy of publicly declared organisational goals.

Yet informal work relationships generally need not subvert

the formal order. This fact reflects the co-operative and productive aspect of work organisations, where the oppressive and exploitative aspect reflects the other side of their dual nature. Thus, Fox (1971: 33, 66) noted that while subordinates often adapt by informally repudiating the demands management make of them, they can also adapt in ways which are not detrimental to top level goals. Moreover, people combine and shift between patterns of adaptation that are broadly functional for the organisation and those that disrupt its central tasks, rather than one or other pattern necessarily being permanent. Certainly, instances in which workers, realising that management is sometimes rather stupid, themselves take the initiative to get a job done probably are only too common. And the 'work to rule' is familiar evidence of the inefficiency of formal rules when not supported by workers' informal co-operation.

In his excellent study of the world of management, Dalton (1959) stressed the restraint on informal action brought about by formal procedures. The prime fact that must not be lost sight of, he suggested, was that formal codes of practice prevail, whether or not they are partially undermined by informal activity. The 'interplay between formal and informal' remained the decisive influence, affecting the 'dynamics, development, reorganization and evolution of the organization' (1959: 226). Dalton highlighted several ways in which informal activity was held in check and put to work through formal institutions. These included meetings, requests from senior management for unofficial action, and formal acceptance, whether grudging or not, of informal practices which have become desirable or indispensible.

> ... however irregularly the informal operates to make changes, to check extremes of official - or other informal - action; or however purely evasive or organizationally

> superfluous the informal may be, the formal restrains it in at least three ways. First, the formal largely orders the direction the informal takes. Second, it consequently shapes the character of defences created by the informal. And third, whether the formal is brightly or dimly existent in the blur of contradictions, it requires overt conformity to its precepts. (1959: 237)

The contribution informal activity, in certain settings, makes to organisational control is a theme taken up in studies conducted by Beynon (1973) and Nichols and Beynon (1977). Beynon (speaking of Halewood's management) gave an example of a production superintendent buying off body shells from the department prior in the line and rejecting them for poor quality, causing an acrimonious row to break out on the shop floor. Beynon's estimate of the frequency of such conflicts seems exaggerated - he suggested that 'wrangles and stand-up rows were not uncommon along the frontiers of departments' (1973: 96) - while our research indicated that such problems would usually have been dealt with routinely. His picture of superintendents swearing at each other on the shop floor, while 'the lads watched', was probably unusual. But the main point is that face-to-face conflict, for Beynon, reinforced the formal system of controls. The 'stand-up rows' were part and parcel of the pressures to meet schedules and cut costs, the crucial difference being that here supervisors contributed to those pressures themselves.

Similarly, Nichols and Beynon noted that '... the technical interdependence of the production process created pressures, and that managers were thereby compelled to control each other' (1977: 38).

Finally, Burns' (1977) recent study of the British Broadcasting Corporation went further perhaps than any other work in the analysis of informal activity and its significance for the formal structure of organisational control. Burns distinguished between organisational forms in which institutional relationships prevail versus those springing from sets of conventional relationships.

In a fully institutionalised structure, he suggested, relationships are closely prescribed, 'following a rigorous code of practice which is the expression of a complex and fully articulated set of values and principles' (1977: 122). Organisations instinctively seek an institutional structure where the emphasis is on administration and management, since the administration of people and things requires a stable, predictable hierarchy of office.

Although no less compelling than institutions, conventions, by contrast, provide an organisation structure which is constructed through daily interaction, rather than being the formulation of imposed rules. While the rules of organisation practice are not continually 'up for grabs,' periods during which conventional understandings are challenged and changed may be traced in an organisation's history. (Indeed, Burns did precisely this in his study of the B.B.C., when he traced the shift from a public service to a professional convention.) In conventional organisation structures, the influence of professionals is usually pervasive, and hence concern revolves around typical problems quite different from those of management, for

> professionals, since they are constantly preoccupied with 'best practice', with innovation, and with the continuous though irregular accretion of new techniques and information which they need to recognise in others

> as well as acquire themselves, construct the social world of their working life in terms of conventions. (1977: 122)

With the distinction between managerial-institutional and professional-conventional organisations, Burns set out the dimensions of two separate models of organisational behaviour. Processes such as conflict, which may appear to be the same no matter what the circumstances, in fact have quite different consequences in these differing organisational settings. In organisations where relatively autonomous groups like professionals predominate, Burns intimated, conflict may reflect differentiation in codes of belief and practice and be the source of change in these codes. In contrast, where managements are subject to powerful control systems, processes such as conflict can serve to tighten the knot of institutionalised order, rather than pull it apart.

What emerges from the studies we have examined in this section is the need to be clear about the kind of organisation under consideration. Burns' two models combine features which, in an attempt to precisely identify organisational processes, are frequently kept apart. In particular, the bureaucratic aspects of Weber's model of administration appear in the managerial-institutional model, while such an organisation can involve concrete tasks rather than the abstract work of bureaucracy - much as Gouldner's notion of 'industrial bureaucracy'.

There is also a need to clearly distinguish different kinds of informal activity. Informal work-groups

that give a basis of resistance to formal control plainly differ in their function from colleague groups that can be so important as channels of influence and promotion. Furthermore, both these collective responses to organisational constraint need to be distinguished from individual patterns of adaptation, that might include anything from retreatism and withdrawal to active ambition. Writers like Dalton, Nichols and Beynon and Burns seem to have in mind yet another informal category, one which serves to extend the control of formal action and operationalise its goals. The division of labour and specialisation within organisations, they suggested, create conditions of pressure in which people act on each other to intensify their own efforts.

Thus, lateral interaction can be the express medium of conflict between groups, but at the same time can take place within the bounds set by formal authority. We noted in Chapter 2 that this kind of 'formal-informal' interaction, the extension of official objectives and established rules, was predominant in the Halewood plant. In that chapter, our analysis was moving towards an understanding of lateral interaction similar to the one examined by the above writers, namely that interaction embodies both the inter-dependence and conflict that are products of strictly co-ordinated production bureaucracies.

3.3 BELIEFS, INTERACTION AND CONTROL

Having looked briefly at the legitimising function of central systems of belief and the contribution of lateral interaction to behavioural control, it may be helpful at this point to examine the work of two writers who have developed theories of organisational control in which these twim elements figure prominently. W. Baldamus and Joan Woodward take rather different approaches to explaining control, not to mention contrasting political perspectives that inform their theories. Nevertheless, the theories share important features.

(a) Baldamus: The Control Paradigm

Although critical organisation theory took shape in the mid-1970s, the lines of enquiry it developed were already to be found in the earlier work of Baldamus. More than twenty years ago he pioneered an approach in which systems of control reflecting the exigencies of capitalism could be seen to operate in industrial organisations. He also consciously challenged the orthodoxy which saw in organisations mere systems of goal-attainment in the service of efficiency. Baldamus opens the discussion in his best known study by stating that its purpose is

> to show that the organisation of industry, with all its complexities and diversities, ultimately revolves on a single process: the administrative process through which the employees' effort is controlled by the employer. This means that the entire system of industrial production will be viewed as a system of administrative controls which regulate quantity, quality and distribution of human effort. (1961:1)

Here then we have the promise of an explicit attempt to develop a critical theory of industrial organisation.

Baldamus develops Marx's notion of the confrontation between capital and labour into an original analysis of labour-process control. The formal controls of work - supervision, work study, payment systems, work-pacing technology - leave a 'gap', Baldamus suggests, between the employer's idea of efficiency and the employee's notion of effort. For while formal systems provide a precise statement of the result of effort the employer seeks in terms of productive output, the expenditure of effort required from the employee to produce at this level remains to be precisely defined. Thus, in the labour process there is an area of economic conflict between employer and employee.

The basic conflict is mediated by a crucial moral element, which constrains the employee to align the value (measured in terms of wages) he places upon his effort with the employer's. Baldamus distinguishes two such elements, namely 'work obligations' and 'standards of effort value'. Work obligations refer to the basic socialisation relevant for employment that the employee undergoes - the 'set of general role-expectations of what is right and wrong for him as a wage-earner'. While these social norms are too diffuse to determine effort, general notions of a fair day's work for a fair day's pay nevertheless define the margins within which the effort bargain varies. Secondly, standards of effort value refer to the relatively precise norms of what level of effort is 'fair' in a particular place of work. These are patterns of 'custom and practice', often the outcome of past struggles between management and workers, that over time establish the effort bargain. Together, general obligations and particular standards - 'this strange world of intricately mixed, highly organised and yet morally compulsive expectations' - provide the necessary and sufficient conditions for a precise and agreed determination of effort value.

On the one hand, the moral elements account for the remarkable degree of agreement that can obtain between employer and

employee over what is a 'fair' work load.

> Provided that the external market conditions are sufficiently enduring to preclude major organisational changes, institutional controls are capable of projecting an element of predictability into the wide range of administrative techniques, ranging from simple supervision to the most complex methods of automatic production. (1961: 100)

But on the other hand, there is no certainty that they will always contain conflict inherent in the labour process. Changes in external market conditions and in internal organisational controls can disrupt accepted understandings of effort value. When this happens, workers cease to perceive existing levels of wages as a fair return for effort, and conflict is likely to manifest itself.

In this analysis, social factors play a crucial economic role. They mediate the inherent conflict between employer and employees, providing the common ground on which relations of production can be conducted. Here Baldamus identifies precisely those elements to which we referred earlier as central systems of belief. In common with beliefs, obligations and standards serve a crucial legitimising function. They constitute a set of understandings between groups which otherwise would fall into conflict; and although serving to stabilise a situation ultimately in the interests of employers, they are nevertheless held as a binding commitment by workers. Indeed, Baldamus insists that while work obligations are part of a received culture, standards of effort value originate within the work force.

> ... it is always the employee's experience in which the process of institutionalisation is rooted. It appears to be the ultimate authority as far as effort values in a stable situation are concerned. The employer, the supervisor or the time-study man can do no more than estimate, usually with the help of measurements of performance, the marginal effort standards that originate in the mind of the wage earner. (1961: 100)

Baldamus views the social processes of control within management as an unproblematic element in his theory of work place control. It is employer-employee relationships, he suggests, that independently determine the nature of industrial organisation, while relationships within the separate classes of management and workers fall into the category of 'human relations'. They are merely a response to the conditions of industrial conflict between management and employees. In this context, Baldamus also distinguishes employment from occupation. Managerial and professional groups (and to some extent, skilled workers) are compensated for their occupational costs, including education, training and experience. But the returns of employment only meet the costs of effort. Although difficult to prove empirically, 'the whole range of efficient administration, including methods of production, remuneration and supervision is centred on the control of effort and not on occupational costs' (1961: 10). While the effort bargain is something continually fought over between management and workers, occupational costs can be strictly determined by the manager or professional. He or she knows within relatively precise limits the kind of returns forthcoming from the occupation. As a result, Baldamus suggests, reproduction of a unity of interests within occupational groups like managers and employed professionals can be assumed; it is the outcome of a 'self-regulating mechanism' reflecting a capacity to accurately calculate occupational costs and rewards.

> ... everything that points to a 'harmony' of interests appears to be connected with the self-regulating mechanism of occupational costs and rewards within the institution of occupation. And the causes of recurrent disorganisation stem from an unbalanced and variable distribution of effort and effort rewards in the context of employment. The significance of this contrast can be seen at a glance from the fact that occupational costs are strictly determinate whereas effort is not. (1961: 10)

In one sense, more recent critical organisation literature concurs with this analysis. The literature stresses that conflicts within the managerial and professional reaches of the organisation resemble disagreements *en famille*. Managerial conflict is confined within the bounds of an accepted need for efficient job performance. And while employed professionals sometimes find themselves at odds with their firm's methods of administration, professionals invariably toe the line.[6] In contrast to Baldamus' study, however, the literature in the main (including, of course, this study) does not dismiss this category of processes as mere 'human relations'. It takes the view that while the specific controls workers are subject to do not much overlap with the controls on managers, lower level managers and supervisors are still subject to a division of labour. They work within a departmental structure, and have to achieve standards of output enforced by a variety of sometimes conflicting authorities. Production supervision particularly is in the position of continually having to reconcile output demands with available resources. Thus, such processes as the formation of managerial beliefs, career and selection are regarded as distinctive aspects of organisational control, and have increasingly attracted the attention of researchers.

Nevertheless, the approach generally advanced by Baldamus does suggest features of organisational control that well may be shared by the control of managerial behaviour. Baldamus was centrally concerned with the need organisations have to reinforce their formal systems of control. The moral factors he drew attention to in this process can be compared directly with systems of managerial belief. His distinction between general 'work obligations' and the narrower 'standards of effort value' serves to focus attention on beliefs peculiar to a particular organisational culture, since these serve the function, Baldamus suggests, of legitimising a concrete production process. In addition, the role of informal interaction serves a related operational function. These processes narrow the very general goals embodied in formal controls,

so that levels of effort and the exchanges between different managerial groups become a 'custom and practice'.

Thus, while Baldamus explicitly distinguishes industrial relations from general organisational relations and confines his theory to the former alone - distinctions in which he is entirely correct - his analysis is suggestive of certain features of complex managerial hierarchy, and may be used in its analysis provided no wholesale transfer of concepts takes place.

(b) Woodward's Analysis of Production Control

A distinctive treatment of the relationship between beliefs and structures of managerial control can be found in the work of Joan Woodward. Woodward's interest had always focussed on the control of production in industry (even if she did not consider the control of effort to be specially important), and in her later work she became interested in the detailed social mechanisms whereby formal systems of control are translated into the actual control of production. Here it is useful to compare the two books based on the work of her research team: Industrial Organization: Theory and Practice (1965), in which the findings of her original South East Essex studies were discussed, and the later Industrial Organization: Behaviour and Control (Woodward, ed., 1970), in which the purpose was to further explore a relationship discovered earlier - namely that different production technologies demand characteristic forms of organisation structure - in terms of a more detailed analysis of production control.

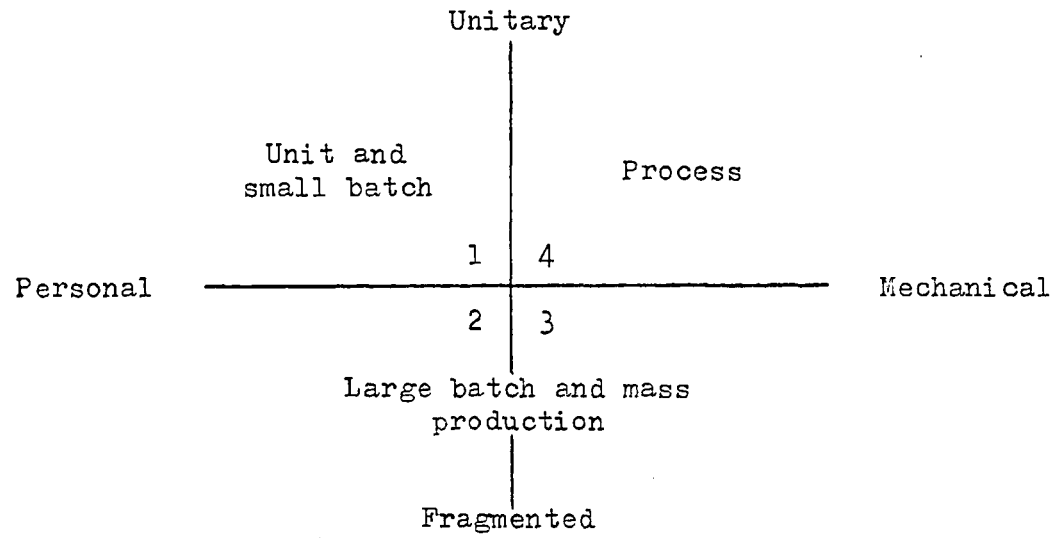
The relationship between technology and structure

discovered in the South East Essex research was, she suggests, a special case of a general although more complex relationship. The key to understanding it is to be found by examining the 'middle range' of technologies in large batch and mass production firms, since here she originally obtained the poorest fit between her measures of technology and structure (1970: 235). Woodward sets out to refine her analysis by introducing several additional independent variables. Two in particular intervene between technology and structure, namely varying systems of production control and systems of managerial belief.

It was the failure of her research team's efforts to find independent measures of technology that led to an interest in the classification of management control systems (1965: 187-8; 1970: Ch. 2). This had originally been identified by Eilon (1962) as a potentially important explanation of organisational behaviour. Control, defined as 'the task of ensuring that activities are producing the desired results... monitoring the outcome of activities, receiving feedback information about this outcome, and if necessary taking action' (1970: 38), is thought to independently influence organisation structure and behaviour. And since 'a firm's control system can be studied independently of both the social system and the technical system and compared with the control systems of other firms' (1970: 38), it is thought possible to develop a typology of control.

Woodward develops a classification of technologies, basing it on two dimensions of the control systems normally associated with them. They are: (a) unitary versus fragmented control, denoting systems in which control of several objectives can be reconciled to a single centre of control versus the embodiment of production control in separate organisational systems; and (b) personal versus mechanical control,

FIGURE 3.1 Woodward's Classification of Industrial Technologies and Control Systems



denoting systems which rely on monitoring and guidance by people versus those in which automated and impersonal devices control production. Thus, a four-fold classification of control emerges - Figure 3.1.

Here Woodward combines her previous, well-known classification of technologies with the dimensions of control systems. The progression from simple to more complex and advanced technologies involves a progression in types of control from quadrant 1, in Figure 3.1, to quadrant 4. A personal and unitary form of control is appropriate in an industry making single units or small batches to customer requirements. Large batch and mass production technologies require fragmented production control, allowing the separate control of costs, quality and volume, provided by both personal and automated control. Finally, in complex process technologies production control is both automatic and integrated by a central monitoring system.

Woodward became interested in mass production technologies since they 'allow much more variation in the kind of managerial control applied' and are 'associated with conflict and irreconcilability between the standards set and with the domination of one control process by another' (1970: 52, 39). Under fragmented control, people have to comply with plural criteria which may be incompatible one with the other, causing possible conflict between groups responsible for different criteria and within groups responsible for several criteria. Moreover, the independence of functions tends to be taken to extremes in fragmented control systems. With self-centred functional units developing strong sectional loyalties and identities, the pressure from competing groups to shift the balance of advantage is likely to recur (1970: 137 ff.).

In addition, confusion about the responsibility for work, Woodward suggests, will compound the difficulties of production control in mass production industries. Small batch firms at the unitary/personal end of the control spectrum conflate the programming of production tasks with their execution. Line managers rarely distinguish the two functions, allocating fresh work as existing work is completed, and delegating the tasks of execution, checking and programming directly down the line. Conversely, at the unitary/mechanical end, the design and planning of production is kept strictly apart from its execution. In process technology firms, mechanical and impersonal mechanisms of control are built in when the plant is installed, frequently by a separate firm of contractors, and remain independent of the people responsible for running production. In both these cases - total overlap and total separation of the planning and execution systems - managers' areas of responsibility are firmly bounded. Managers focus their efforts either on day-to-day production

problems (unitary/personal), or they are free to concentrate on projects and long-range planning (unitary/mechanical).

However, in middle-spectrum firms the production planning and execution systems overlap partially. Specialist departments plan production within large batch and mass production firms, but the departments are located within the plant, rely for information on production personnel, and well may be subject to pressure from them to modify schedules. Under these conditions, managerial activity reflects a relatively diffuse and confused role structure.

> It is the degree of uncertainty with which an organisation has to contend that determines the amount of overlap between the system that designs and programmes the production task and the system concerned with its execution... High uncertainty... is linked with total overlap and low uncertainty... with total separation... In the conditions of high uncertainty... the energies and skills of management concentrated on setting up adequate systems of work organisation and control for each order or set of equipment manufactured. Where there is a medium degree of uncertainty... emphasis shifts to monitoring the system, planning workflow, coordinating materials and services needed, keeping quality and costs within reasonable bounds and operating generally as a trouble shooter. In low uncertainty organisations... management activity is primarily directed towards the improvement of the system and planning ahead for major systems changes without interfering with ongoing operations.
>
> (1970: 239-40)

Turning to another relevant aspect of the refinements of Woodward's earlier work, Kynaston Reeves and Woodward (1970) suggest that <u>beliefs</u> play a critical role in large batch and mass production technologies, more so than in unit and process technologies.

> ... in batch production... the body of ideas expressing the goals of the work was not so closely tied to the production hardware. Plant and machinery were more flexible than they were in continuous flow production and in most cases products could be modified with relatively minor plant modification. Decisions about what products had to be made and how plant and machinery could best be utilised had therefore to be made more frequently. Conflict between short- and long-term decisions occurred more often. Management had therefore much more freedom of choice about when and how decisions should be made, how resources should be used and how simple or complex the system of control should be. Moreover, although in unit production it seemed that a larger number of decisions had to be taken, much less was involved in terms of risk. (1970: 39)

Thus, the 'body of ideas' management forms around the goals of the organisation is relatively highly developed where there exists the possibility for it to influence behaviour. This condition obtains, Kynaston Reeves and Woodward suggest, in mass production technologies, because here the link between technology and structure is least strictly determined. While the fragmentation of control characteristic of these industries places the onus on management to build an appropriate mix of controls, management's own sectional and heterogenous structure renders it the less capable of projecting the unity necessary for such strategic decision making. Consequently, motivation and morale, expressed in a clearly articulated and unified belief system, become all the more important.[7]

In firms employing mass production technologies, such systems of belief are comparatively critical for business success because management itself is responsible for a wider range of decisions than is the case in unit or process

technologies. The reasons Kynaston Reeves and Woodward provide are all connected with the 'production hardware' - i.e. with the technology. But we may suggest an additional factor to account for the critical role of beliefs, namely the importance of supervising labour in mass production industries. In unit production, the critical figure tends to be the experienced craftsman; while the engineer tends to be responsible for the critical objective in process industries, which is the efficiency of yield. In both cases, the labour essential to production is self-regulating. But mass production technologies invariably are labour intensive and require the control of a large manual work-force. Hence the effectiveness of management and supervision becomes the crucial element in production.

Woodward does not take her analysis of managerial beliefs very far, nor does her interpretation of beliefs always appear to be consistent. Indeed, in her earlier book she takes managerial beliefs to be something akin to an irrational, pre-scientific fancy that managements cling to in lieu of full information.

> ... academics must recognise that in the present limited state of knowledge, management needs a system of beliefs, and that the propagation of this system of beliefs is a legitimate part of management education, and management must recognise that a system of beliefs becomes less necessary as factual knowledge is extended and must be prepared to modify or relinquish their assumptions as soon as evidence is produced to show that they are no longer tenable. (1965: 257)

Even in her later book, where she tends to treat more seriously the importance of managerial 'ideologies of work', usage remains confined to belief in a goal or objective - it

might be a belief in a high quality product, or in the efficiency of particular production techniques. In other words, beliefs appear as managerial work ethics, which influence organisation structure only where there is space for them to do so - usually in the absense of advanced technologies and information systems. The 'strong' sense in which the notion of a belief system may be understood, i.e. as a socially produced hegemony of ideas central to the legitimation of management power structures, is not to be found in Woodward's work.

None the less, her stress on beliefs as a critical and independent component of production control proved very valuable. The Halewood plant, our research site, used a mass production technology displaying all the features to which Woodward draws attention. Major production parameters were controlled by separate systems, and in supervisors' continual intervention in the operation of the automatic-transfer technology both personal and mechanical control were apparent.

The various issues Woodward raises - the conflict arising from fragmented control, the dominance of particular objectives and the interaction between personal and mechanical control - will come under review in the research.

3.4 MANAGERIAL SELECTION

In institutions such as the family and friendship group, socialisation is the main mechanism through which a received order is passed on. Aspiring members realise that they must become proficient at operating the rules of groups to which they wish to belong; and sanctions which manipulate social rules, like ostracism and defining deviants as obdurate or inadequate, are often overwhelmingly effective in securing compliance, for all that they are subtle. However, organisations are the centres of capitalist production and possess mechanisms of control far more decisive than mere exposure to organisational culture. Existing alongside socialisation and powerfully reinforcing it are the selective mechanisms embodied in the organisation's hierarchy.

Weber was among the first to draw attention to the central part played by selection in organisational control. His notion of the 'closure' of social relationships generally referred to the appropriation of rights in any valued thing - e.g. affection, property and status - achieved when a group or person excludes others from such rights (1964: 139-43). But in the particular case of bureaucracy, Weber used the term 'corporate group' to denote relationships in which rights in authority are monopolised. While a minimum level of agreement over shared purposes and beliefs is necessary for the continued existence of any bureaucracy, senior management is a corporate group in the 'strong' sense that their level of common purpose and commitment is extremely high. Establishing the authority of this group is also an essential precondition for corporateness in the 'weak' sense of a minimum level of legitimacy to obtain in the lower ranks, since the normative pressures of compliance depend upon the identification of organisational purpose with that of top management if they are to diffuse throughout the hierarchy.

Thus, the closure of the very senior levels in an organisation's administrative staff, by means of established criteria of selection and recruitment, brings about its exclusiveness, which then enables the corporate group to perform the continuing function of enforcing the organisation's order.

> ... it is not merely a matter of action oriented to an order, but which is specifically directed to its enforcement. Sociologically this adds to the concept of a closed social relationship, a further element which is of far-reaching empirical importance.
>
> (Weber, 1964: 146)

The organisation's recruitment and promotion practices are the two most obvious ways in which the selection of people takes place. Organisations are sometimes very cautious about admitting people to employment, particularly when senior positions are involved. Salaman (1979: 185) described the procedure used in selecting candidates for officer training in the British army, whereby a very precisely defined military culture was used as the yardstick for selection. Although the language army selectors used, even among themselves, to describe the personality characteristics they were looking for was apparently rather vague, the selectors themselves knew exactly what they meant. For example, the capacity in a candidate to remain composed and present a confident front, particularly when he had made an obviously incompetent decision, was highly prized, being defined as 'coolness' and 'natural leadership'. The usefulness of such an ability to an organisation such as the army, where discipline is of the utmost importance, is readily apparent. Interestingly, quite appart from the function of preserving organisation structure through selection of appropriate candidates, Salaman's materials on the discussions conducted within selection boards demonstrated an additional, latent function. Recruitment was an exercise in 'active conformity' for selectors too. They themselves were carefully chosen for their commitment and success as army officers, and the selection procedure played an important part in defining an acceptable language with which to express the army's priorities.[8]

Promotion represents the continuation of selection into the inner circles of organisational power. Again, the principal selection criterion is the candidate's compatibility to organisational definitions of competence and trustworthiness. However, promotion can be based on an employee's actual performance on the job, rather than on simulated performance in interviews or games. Promotion therefore opens up possibilities, mentioned earlier, for an internal labour market to regulate the allocation of labour and skills, and for formal and informal systems of appraisal to govern selection. Of course, recruitment and promotion frequently amount to the same thing, since recruitment into an organisation may depend upon a candidate's level of promotion in another organisation.

In both recruitment and promotion, much can depend upon candidates' ability to anticipate what selectors are seeking. The 'American Soldier' studies conducted in the 1940s, for example, discovered that soldiers who exhibited 'attitudes considered favourable from the army's point of view' were more likely to obtain promotion than soldiers not exhibiting such attitudes. Further, the researchers were able to determine the direction of causality in the relationship - i.e. whether 'favourable' attitudes earned promotion or whether promotion caused soldiers to subsequently adopt such attitudes. A panel study of the progress of a group of recruits showed that private soldiers who were originally conformist were more likely to be promoted, rather than an attitude change occurring as a result of promotion (Glock, 1955). In other words, the ability of the organisation to select accurately and to capitalise on recruits' anticipatory socialisation was, in this case, the critical factor in control, rather than socialisation.

While people may consciously try to 'fake' conformity with organisational criteria, the willingness and ability to produce such behaviour can be equally desirable from the

organisation's point of view, when compared with unassumed ability and commitment. Indeed, the line where commitment fully takes over an employee's personality and he ceases to hold any nonconformist attitudes may be impossible to draw, even though pressures to conform are clearly greatest where organisational rewards and responsibilities are greatest.

From the employee's point of view, the selection process is manifested in terms of his progress, or lack of progress, through a status hierarchy - that is, in terms of career. Again, Weber was among the first to point out that career ties the bureaucrat to organisational rules, and so provides an important social control of behaviour.[9] In order to impress superordinates who control promotion, the employee must actively support organisational goals.[10] To the organisation, career represents control on credit, since career pressures ensure control of behaviour in return for a promotion that may be deferred many years, or indeed may never come. Moreover, control of many may be secured while the reward of promotion goes to a few. Particularly when competition for jobs is acute, the pressure on employees to demonstrate their excellence can become very great.

The feature which has most attracted the attention of sociologists is the insidious nature of the social control that stems from career. Its peculiar strength lies in its being based on self-control rather than on objective, external control, which may stimulate hostility and resistance. To be sure, the price of failure in the race for senior posts has a distinctly material aspect: those in the competition must either 'get on or get out', and unemployment is not an unheard of fate even for managers. None the less, immediate career pressures are relative and normative. The rewards of power and esteem and money that accompany promotion are the carrot that draws management, just as the great psychological pressure that can be brought to bear on those who fall by the wayside is the stick.

Possibly the greatest appeal a career has is that it resolves the contradiction between intrinsic and extrinsic rewards that appears as the natural lot of workers. If a manual worker wants a higher wage, he usually has to forego some other reward in order to obtain it: he has to work overtime or take on dangerous or unpleasant work. But career matches increasingly interesting and responsible work with increasing rewards of money, status and security. It is common to hear from managers and professionals that their motive for wanting senior jobs is that the jobs provide them with the freedom to do the work as they would like to see it done. In other words, if they manage to secure more rewarding work, financial returns follow as a matter of course.[11]

Thus, career embodies the intense form of socialisation that selective mechanisms create. Becoming adept at moving within an organisation's culture is an essential part of career aspiration. Learning to interact with colleagues, gaining recognition as an important participant in organisational life are the ingredients of success. The consequences of all this for social control are obvious. Career represents a cumulative, personal investment that brings about increasing attachment to the organisation and its ways of seeing and doing. As Salaman (1979: 140-1) puts it: 'When the self is so enmeshed within the organisation, the distinction between personal priorities and organisational goals becomes relatively meaningless, and self-control becomes little different from organisational regulation.' [12]

Having said this much, the emphasis on career in the literature has tended to encourage a rather limited view of the selection process. Studies of career mobility have been naturally prone to select people who <u>have</u> careers, and so to place less emphasis on gatekeeping as the counterpart of selection. Looking at the topic from this subjective viewpoint of the consumption of career chances can obscure the fundamental importance of selection as a mechanism of organisational control. Indeed, a desire to

extend the range of the subjective view by also stressing the objective function of selection appears to be the motivation behind several recent studies.[13]

Finally, in Weber's preoccupation with the link between authority and expertise lay an important comment on the selection of skills in organisations. 'The specialised knowledge of the expert', Weber suggested, 'became the foundation for the power position of the office holder'. But bureaucracy only develops to the extent that experts can be controlled and authority structures kept intact.

> ... an early concern of the ruler was how to exploit the special knowledge of the experts without having to abdicate in their favour... (The ruler) exploits expert knowledge and - what frequently remains unnoticed - seeks to fend off the overpowering weight of expert knowledge and to maintain his dominant position in the face of experts. He keeps one expert in check by others and by such cumbersome procedures he seeks personally to gain a comprehensive picture as well as the certainty that nobody prompts him into arbitrary decisions.
>
> (1964: 236)

Thus while authority rests on expert knowledge, the mere possession of expertise is not decisive. The capacity of senior office holders to control central administrative tasks flows from their capacity to impose definitions of the organisation's central tasks, which in turn depends upon selecting appropriate skills into positions of authority and relegating others to service roles.

3.5 CONCLUSION

The above discussion of organisational control raised some issues which it is appropriate for this research to pursue, and it is now possible to specify them rather more concisely.

Halewood is plainly what Burns referred to as a managerial-institutional organisation, particularly that part of it given over to production. Recognition of this fact permits us to advance the explanation of why empirical testing, reported in the previous

chapter, did not sustain the relationships originally postulated in the causal model. What is strongly implied here is that the original model was inappropriate in Halewood. The model, based on the decisions approach, more closely resembled Burns' professional-conventional type. Thus, an examination of organisational control along the lines of Burns' other, managerial-institutional model suggests itself as an appropriate avenue to pursue. Moreover, the notion of established, institutional codes of practice and purpose ties in closely with that of a central system of beliefs, which we saw was an important focus in both the Weberian and Marxist accounts of control.

The capacity of management and supervision to successfully co-ordinate the labour of a large work force, comprising semi-skilled, skilled and professional labour, is the central issue. For such a cadre to be capable of administering production calls for specific social processes that maintain its legitimacy and ability to exert influence. In this context, we shall focus on three main areas: the dominant system of organisational beliefs, which we shall view as the product of two principal systems, namely supervisors' and managers' control of each other through the medium of pressure applied in inter-departmental interaction, and the selection of appropriate personnel to senior posts.

These topics - beliefs, interaction and selection - stem from our modified interpretation of lateral conflict. Thinking about the problems that were experienced trying to use conventional theories of lateral conflict on our data, it seemed conflict would be better understood if located in a broader framework viewing organisations as control structures. With administrative and professional labour viewed as part of the collective labour process, conflict within such groups can then be seen to have a crucial function in enforcing work discipline. Thus, the specific issues for research to concentrate on are as follows. Firstly, the legitimacy of

formal authority and production control depends on these structures being accepted (albeit in varying degrees in the organisation) as the underlying objectives of a belief system. Hence we need to look for evidence of such a dominant set of beliefs. Secondly, formal constraints passed on in the non-formal processes of lateral interaction must be examined, both in terms of the pressure they produce for intensified effort and for the part they play in defining the limits to the legitimacy of dominant beliefs. Thirdly, beliefs and selection have a reciprocal impact: dominant beliefs provide a yardstick for the selection process, and beliefs are reinforced when bearers are able to use the powers of senior office.

Finally, before moving directly to a discussion of organisational control, in the two chapters following this one it will be useful to examine the production task. It has been suggested that the bulk of non-formal interaction in organisations like Halewood servesto narrow down and operationalise general demands of work control; so a look at these formal control systems will provide a useful background to our main topic, the social mechanisms of control. Furthermore, supervision as a topic in its own right deserves some attention. Supervision, the motor industry and supervision in the motor industry have all proved to be areas of great interest in industrial sociology, and the Halewood research gives an opportunity to reflect on some of this literature.

NOTES

1. For example, Weber distinguished the rationally administered religious communes of Holland and England in the seventeenth century from monopolistic industry, noting that the latter did not 'stand in the main line of continuity with...

autonomous capitalist development' (Weber, 1964: 358). In this we see a remarkable similarity with Marx's hint that it was productive craft guilds, rather than the monopolistic merchant guilds, that during the Stuart period in England formed the 'really revolutionary way' into industrial capitalism (Marx, 1970a: 388-96; Dobb, 1964: 123 ff.).

2. For example, Edwards' (1975) findings, based on manual workers in Boston, USA, indicated that psychological traits associated with dependability were highly correlated with wages earned by workers and with supervisors' notions of what defined a 'good worker'. These relationships were independent of other worker attributes (sex, age, I.Q., educational attainment, family background and job history), and show that modern capitalist firms seek and reward traits in their workforce that contribute to stable compliance. See also Gintis (1976).

3. Marx, 'Un chapitre inedit du Capital', quoted in Brighton Labour Process Group (1977). See also, Elger (1979).

4. See, e.g., Salaman (1979) and Clegg and Dunkerley (1977).

5. Fox (1974) relates the 'trust' an organisation can count on from its employees to the level of discretion permitted them in their work. For trust to be sustained, he suggests, returns from a job must be perceived to be appropriate to its level of discretion, and both must ensure that expectations are met, 'lest the occupants misuse their discretion or leave the organisation al together' (1974: 60).

6. Salaman (1979:139)

7. Thompson (1967) also notes that the 'crystallisation of goals' expressing managerial commitment is an important component of systems of production control.

8. The 'elitism' of the British army, in terms of the high proportion of its officers drawn from public schools, is renowned. See, e.g., Linda Christmas, 'Choosing class for Britain's Army', The Guardian, 16 October 1980; and Macdonald (1980).

9. Gerth and Mills (1947: 198ff.)

10. Presthus (1978: 125) shows that employees can become highly sensitive to the opinions of immediate superordinates, who control their promotion chances

11. See, e.g., Fox (1974:24).

12. See also Sofer (1970), Willensky (1968) and Becker (1968).

13. See, e.g., Silverman and Jones (1973) and Salaman (1979).

Chapter 4

THE PRODUCTION SYSTEM

In order to understand the work of supervisors and production engineers at Halewood, it is first necessary to understand the system of production and its control. Mechanisms of social control, which are our chief interest, were intimately connected with the enforcement of production targets.

At company level, Ford's production policy is quite clearly one of centralisation. By the early 1960s, the company's plants were more evenly distributed in Europe than those of any other car manufacturer, so it had more to gain from rationalising production. The company embarked on an integrated production process, designed to eliminate duplication of such functions as central staff and product development, besides enabling economies of scale through massive production runs of common components. In this, Ford was far ahead of its European competitors like Peugeot and General Motors, who only adopted these methods much later, in the 1970s. (See Kronish, 1978)

Buying out minority shareholders in the European subsidiaries enabled Ford of Europe to be set up in 1967, as the corporate head. In 1967, the Escort was jointly developed in German and British plants. But the Capri, which followed in January 1969, was the first 'European car', assembled from components produced in different countries. It was the culmination of a process lasting more than a decade in which plants in Germany, Britain and Belgium had been gradually merged into a Europe-wide division of labour. When it launched the Capri, Ford was able to phase out the German Taunus and the British Corsair, and begin to create a range common to all its European plants. The models that followed were all produced in more than one country.

Various technical factors affect the extent to which production becomes centralised. The lighter and less bulky of the stampings have for a long time been shipped between countries, and engine production is increasingly becoming centralised. The engine of the U.S. Pinto model was made in Germany in the 1970s, and the new engine plant built in South Wales serves most of the European plants. But foundry work and heavy engineering tends to be conducted on a country by country basis.

The pattern of interlinked production is a long-term strategy which is frequently adjusted to meet short-term requirements. Technical considerations usually form the basis of short-term decisions - which plant has spare capacity, which one can produce long runs at high quality, whether there are problems of transportation between particular plants or the possibility of a dispute arising and so on. But the longer-term decisions about the international division of labour reflect power struggles inside the company as well as technical matters. Indeed, much internal company politics is concerned with the location of the various elements of the division of production. For instance, production of the Pinto engine just mentioned went to Europe because the president of Ford of Europe campaigned hard for it to be made there instead of in America. Needless to say, this competition is a marvellously effective control of plant managements, as they will do their utmost in their efforts to compete for expansion capital.[1]

Turning to plant level production, the production system at Halewood was extensive, so to keep a discussion of it fairly brief the groups upon which production depended only indirectly or infrequently, such as Personnel,

Financial Control and Industrial Relations will be omitted (as they have been in the research samples). What follows, then, is a concise but fairly comprehensive account of the production process and its immediate services at the time the research was conducted. After this, the major features of the production control system will be described.

4.1 THE PLANT PRODUCTION PROCESS

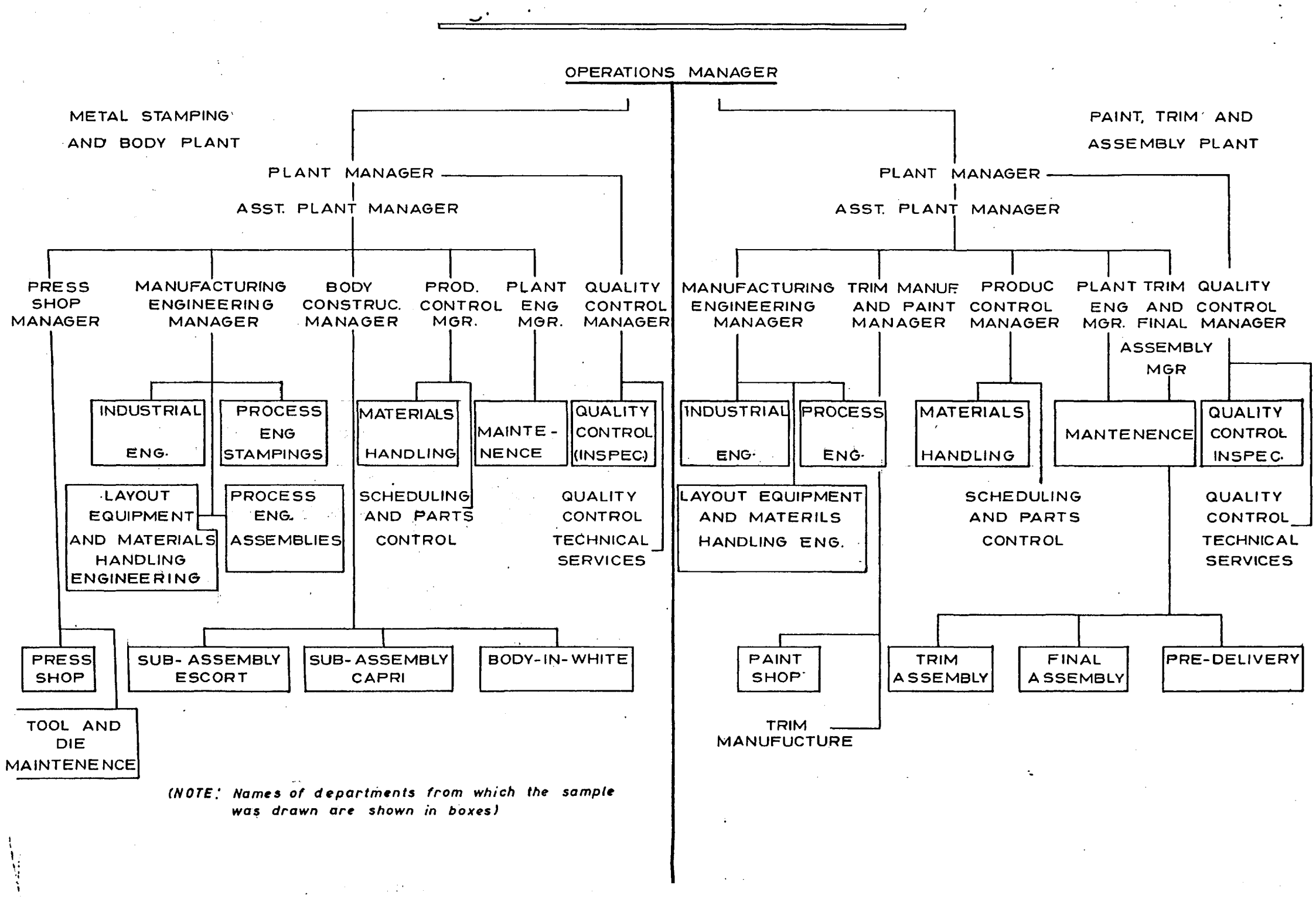
The factory itself was a modern one. The large central plant had few additional buildings, and with an open-plan shop floor the layout of equipment was flexible in many areas. Most of the stock areas were inside - an important feature in a car assembly plant, as stock quickly deteriorates if it is stored outside (mild steel panels, for instance, are very susceptible to rust), or it can be damaged in transit if stored a long way from the production areas. The plant had other planned features: it was on a railhead to facilitate the daily shipment of parts by liner-trains to and from other Ford plants; the Paint Shop was on a specially constructed mezzanine floor; there was plenty of parking space if finished cars needed to be stock-piled; and the workers used purpose-built facilities such as canteens and washrooms.

At the time of the research there were two models being produced at Halewood, the Escort saloon and light van and the Capri saloon. (Ford's other two models, the Granada and Cortina, were assembled at Dagenham.) The Escort was the high-volume model, with two Escorts being produced for every one Capri. In 1970, the plant's total capacity was 1,500 cars and light vans per day.

Production technologies varied within the plant. The major assembly operations were conducted on 'the line', but the moving line also possessed certain characteristics of process technologies. Production often involved a very complex system of interdependent operations, and problems like persistent quality faults were sometimes difficult to trace and rectify. For this reason, supervisors were often preoccupied with the difficulties of getting systems to run smoothly, and felt that once working they were best left alone - a common management attitude in process industries. The Press Shop and Paint Shop were the sections in Halewood that operated along lines closest to process technology, and here supervisors' perceptions of their jobs were noticeably coloured by a prediliction for stable production runs.[2]

In addition, although Halewood was called an assembly plant, half of its operation was in fact manufacturing. The organisation chart - Figure 4.1 - shows that the factory was divided into two plants: the Metal, Stamping and Body Plant and the Paint, Trim and Assembly Plant - MS&B and PTA. As the names suggest, the Body Plant produced the basic body shell, and it was here that the manufacturing part of the process was conducted. Then the shell was painted, and the mechanical and electrical parts and the upholstery fitted in the Assembly Plant.[3]

Both 'plants' were under one roof, with no obvious demarcation between them. The division was organisational rather than physical. Its purpose was to facilitate and control the provision of services required by production departments. For example, a single quality control department for the whole factory would have been too unwieldy and had to encompass a range of skills too wide to be controlled by one manager. Thus, the services were duplicated in each plant.



(NOTE: Names of departments from which the sample was drawn are shown in boxes)

The serial division of labour - basis of the overall co-ordination of work - started in the Press Shop.[4] Here, steel was received in massive rolls, was unrolled and cut into sheets, or 'blanks', to be used in the presses. The giant presses used to stamp the large 'skin' panels for roof, underbody and doors were built in lines of perhaps six or seven presses. A line of presses was required as the deeper curves to be stamped would tear the metal if they were stamped in one operation. Instead, the shape had to be partly stamped into the blank by the first press, then further stamped by the second press and so on. The panels passed through the lines of presses, finally emerging with the required curves and holes. Operators fed presses at the beginning of a line, but from there the blanks were fed from press to press automatically. Production was organised in runs that might span shifts, and anything from a few hundred to several thousand panels produced in one run.

Because of the high capital intensity of the Press Shop and the process-type technology, economies of scale increased the longer the press run. Integration between plants was useful here, and indeed the Ford of Europe assembly plants were largely integrated through the output of their press shops. For example, Halewood might run a batch of several thousand Escort roof panels, some of which would be used in the plant and the remainder sent to other plants that assembled the Escort, while Halewood would receive in turn perhaps Escort door panels from the other locations.

As well as the normal costs of co-ordination and transport, there were many problems arising from production integrated at this level. Panels might be damaged in transit, defective panels could not easily be sent back, and a dispute in one plant could be widely disruptive. But it was an established Ford policy that such costs were more than

offset by the economies of scale achieved. Thus, the Press Shop was a crucial department, and the Press Shop Manager was regarded as a key figure in the plant, one whose influence was much wider than other managers at the same formal level in the hierarchy.

As well as skin panels, which went straight into the body shell, the Press Shop produced smaller stampings which were welded into assemblies in the next section of the process, Body Construction. This area was divided into two departments - Sub-assembly Escort and Sub-assembly Capri - corresponding to the two models produced. But as with the division between plants, it was not one which was apparent in the factory layout. Physically the area looked rather jumbled. Operators worked singly or in groups with large weld-guns, spot-welding small parts into larger assemblies like petrol tanks and body struts. Although assumed under the overall serial division of labour, the division of labour in the area was heterogeneous (see Note 4). In contrast with the Press Shop, Body Construction was one of the most labour-intensive areas in the factory, and the impression conveyed to an observer tied in with what one expects of heavy manufacturing: noise levels were high, the big weld guns continually threw off showers of sparks and the materials used were unpainted bare metal.

At the far end of the Body Construction area were the large multi-weld jigs in which the first stage of the body shell was constructed. These were frames into which panels for roof, sides and underbody were fitted before being brought together by the action of the frame - rather like a giant hinge - and automatically welded. The body shell that emerged was fitted onto a skid, and it was here, at the end of the framing section, that the moving track began.

The bodies went next into the Body-in-White department - so called because its task was to finish the bare metal, or 'white' body shell. Although major quality faults arising in stamping and construction showed up here, Body-in-White was a low-key department. The tasks were fairly simple, the pace of work not hectic, and noise levels were low. Here the doors and boot lid were fitted, and the general metal finishing - soldering of seams and sanding - was completed to produce a shell ready for painting.

The Paint Shop, the first department in the Assembly Plant, was built above the shop floor on a mezzanine level, and the bodies were taken up on a hoist. The crucial problem in the painting operation was to achieve a first class finish, and the purpose of isolating the Paint Shop from the rest of the factory was to reduce dust and dirt levels. Keeping the shop clean and tidy - 'housekeeping' - was a priority.

Car bodies first passed through automatic dipping tanks to wash and de-grease them, and to lay on a chemical coating which helped the paint to adhere. The bodies were masked, and then sprayed by hand in enclosed booths through which the track passed. Compressed air spray guns, each for a different colour, hung on the walls of the booths, and the operators chose the correct colour for the body in front of them and sprayed it in the time it took to pass - less than a minute. The bodies then entered high-temperature ovens to bake on the enamel.

The Paint Shop seemed to be free of some of the pressure to which other departments were subject. It was isolated on a floor above the main shop; dipping and washing were done automatically in tanks through which the cars passed unseen; the spray booths and ovens were also enclosed, and

the area was kept very clean and tidy. All this lent an air of calm and orderliness. However, supervisors in the Paint Shop were subject to the usual pressures to meet targets, and workers were under the same constraint as other line workers. In addition sprayers had to wear protective clothing and face masks because of the finely divided paint released into the atmosphere, which made conversation impossible and added to the general discomfort of working in the enclosed booths.

At the end of the Paint Shop, the freshly painted bodies arrived at the lift which dropped them back to the shop floor and onto the track. The next two departments were Trim Assembly and Final Assembly. In Trim Assembly, one of the biggest labour users, the soft trim was attached - the plastic linings for roof and doors, the carpets and mats - as well as electrical assemblies and dash-board, windscreen and windows. In Final Assembly, cars passed onto lines that enabled people to work underneath them as well as on the level, fitting fuel, brake and exhaust pipes, the suspension and steering systems. In addition, the engine was assembled into the body in a major operation known as the 'body drop.' The fully assembled body shell was lowered onto the assembly of engine, gearbox and axles, known as the 'power train'.[5]

It was the Trim and Final departments (especially Trim Assembly) that gave rise to the popular image of car assembly as work which is tedious if not physically hard. Here were the long rows of brightly coloured cars slowly passing stationary operators who monotonously repeated simple tasks. The pace of work was high, but the steady progress of the cars and their finished appearance lent to the assembly areas the semblance of a complex but tightly controlled operation.

The moving track terminated at Final Assembly, and cars came off the line before they entered the last department, Pre-delivery. Here various tests and final repairs were carried out: petrol was put in and the engine run, a water test detected if the body was waterproof, lights and brakes were tested and finally the car was driven out of the plant. In contrast to the assembly areas, Pre-delivery appeared a rather chaotic place. The workers became expert at driving cars fast in the plant, stopping sharply and parking closely in the confined space. The air was tainted with petrol fumes in spite of large extractors, and noise levels were comparatively high.

Finally, there was one other major production department, not part of the serial division of labour, namely Trim Manufacture. Its main product was car seats, but mats and door trim were also produced. Housed in a building separate from the main plant, Trim Manufacture consisted of two sub-departments, one of which cut out and sewed the seat covers, while the other assembled the seat frames, springs and covers into finished seats. The former of the departments was the only shop floor department to employ women as manual workers. They operated sewing machines, sewing together the plastic seat covers which had been cut by men - a division of labour found throughout the garment industry, incidentally. It is interesting, too, to note here the company's attitude towards female supervisors. For although the first line of supervision in the female supervision was made up of forewomen, all the general foremen and the superintendent were men.

This then was the basic production process - the stamping and construction of a car body, and the assembly into it of

materials, some of which were manufactured in the plant, while others were bought in from suppliers.

In addition, production was supported by various service functions. There were three engineering functions: industrial engineering, process engineering and layout, equipment and materials handling engineering. And there were three service functions: materials handling, quality control and maintenance. These functions were duplicated in the two plants, so that in the whole factory two departments represented each function - Figure 4.1. (Besides this basic pattern, two more specialised departments served the Press Shop: a process engineering department, and a tool and die maintenance department. Once again, these emphasise the critical role of the Press Shop in production.)

Dealing with the services first, the Materials Handling departments covered two basic tasks: to receive and store incoming stock (the very extensive stores areas were their responsibility) and to move stock and parts about in the factory as required by production. In the PTA, the latter task consisted of taking stock from the stores to line side, and in the MS & B the panels and parts had to be shifted about from machine to machine. In addition to this, in the body plant Materials Handling was also responsible for packing and shipping panels and parts to other Ford locations.

The tradesmen mostly employed in the Maintenance departments were fitters and electricians. They provided an on-the-spot service for breakdowns, as well as a planned maintenance programme for machinery and internal transport. On the shop floor, maintenance workers operated from cribs where tools and equipment were kept, and their service was requested by the formal system of handing in a request slip to the crib - though as we shall see, production supervisors

often approached the maintenance foremen directly.

The third major service was quality control. Quality inspectors worked on the line in what were known as buy-off areas at the boundaries between departments. When a car or a batch of assemblies was passed by the inspectors, it was 'bought' by the department next in line, and figured in the first department's budget as a credited output. This system allowed each department to be treated as a cost centre, and formed the basis of managerial control. Individual inspectors had a schedule of perhaps a dozen quality points to check, paying particular attention to safety items like brakes and the spot welding on structural parts. A much more thorough check was run on a single car chosen at random from the lines each day. The manning of the Quality Control departments was very like that of production departments - quality inspectors worked next to production workers on the line and like them were hourly-paid, although all inspectors were on the highest manual grade. Later, we shall see this similarity of job content reflected in the perceptions of quality control supervisors.

In one sense it is misleading to call quality control a service, since it was one of the chief means of monitoring production and one which production supervisors saw as a source of pressure. But there were ways in which it manifestly was a service. Without quality checks, the work of the inter-dependent production departments would have soon ground to a halt. Quality supervisors spent much of their time helping production supervisors to comply with inspection procedures.

The remaining service department to consider is Tool and Die Maintenance. This provided a complex service to the Press Shop comprising three separate functions. Firstly, the Toolroom was an engineering shop in which repairs and

modifications to the dies were made. This involved machining the die-faces that stamp the panels, and employed the engineering trades of turning and milling. Secondly, Try-out was the section responsible for installing dies in the presses and getting them working to process. The dies in the big panel presses were massive blocks of steel, and changing them between press-runs and producing an acceptable panel from the new run was a difficult operation. Thirdly, the Automation section was responsible for the smooth running of the automatic equipment that transferred panels between presses in line. Each of the three sections was crucial in producing panels at the required volume and quality. Although Tool and Die Maintenance was really an engineering department, it has been included among the services because it was so defined by Press Shop management and employed mostly time-served tradesmen rather than engineers with professional qualifications.

Turning lastly to the engineering departments, the work of Industrial Engineering was what is more familiarly known as time and motion study. The industrial engineers conducted work study and produced times for the many thousands of individual tasks in Halewood's extreme division of labour. Ford's long history of measured day work and rejection of bonus and piecework payment systems was a prominent feature of company policy, and the setting of times has always been a management prerogative rather than being controlled jointly with the unions. Consequently, disputes over times were rare at Halewood. Once a time for a job had been set there was rarely any reason for it to be changed, unless the whole process was being changed. And the day-to-day work of the industrial engineers involved very little haggling with shop stewards over job times.[6]

The industrial engineers' major function was to help production departments man the lines and equipment efficiently. If a section needed to be re-organised as a result of labour shortage or perhaps because of a re-organisation in other sections, the foreman called in an industrial engineer to balance the new times. There were constraints on how much flexibility could be demanded from workers - both because workers and stewards resisted and because skills in any case were not completely interchangeable - but the company had secured considerable flexibility of labour, and the industrial engineers had a fairly free hand.

Industrial engineers also played an important part in manning the lines sufficiently fully to start up in the mornings, given the problems caused by absentees and latecomers. A senior industrial engineer sat with the production superintendent for whose department he was responsible, and during the first hour of the morning, as the reports came in from shop floor foremen, they worked out the most efficient manning with the workers present.

Moving to Process Engineering, this was the most important of the engineering functions for the immediate task of keeping the lines moving. The process engineers were responsible for maintaining the complex relationship between raw materials and machinery - i.e. keeping the work 'to process'. Typical process problems - when jobs went 'off process' - were such things as holes being incorrectly placed so that parts did not fit together in assembly. The process engineers were in closer touch with production supervision than any other engineers, and were subject to many of the pressures of production. As we shall see later, this had a noticeable effect on their perceptions.

The third and final engineering function, Layout, Equipment and Materials Handling Engineering, was a catch-all department providing the engineering services required in addition to the main ones of process and industrial engineering. There were three more or less unrelated tasks involved. Firstly, layout: as the plant was open-plan, layout was flexible in a number of places. The layout engineers were responsible for designing new equipment layout in sections under construction, and subsequently improving it at the request of shop floor supervisors. Secondly, the equipment function was to monitor the replacement of equipment, and to provide information about new equipment. Thirdly, materials handling engineers designed pallets for the components that Halewood sent to other Ford locations.

4.2 PRODUCTION CONTROL

The Production Control departments at Halewood dealt with the volumes of different models of vehicles produced and with co-ordination of parts flow. However, in line with the ideas explored in section 3.3(b), we shall use a broader definition of production control, which will include not only schedules but the control of costs and of changes in engineering specifications.

(a) Volume Schedules

The volume schedule provided the basic control of production. It was put out by the Scheduling and Parts Control departments, and specified the hourly volumes, types of model

and parts that each department and section should produce. Scheduling thus provided the co-ordination required in mass assembly, namely that the parts made in the factory and bought from outside suppliers should converge on the time and place that they were to be assembled. For example, if a particular model of car arrived in Trim Assembly at the station where seats were put in, it had to be co-ordinated with the arrival of the appropriate type and colour of seats from Trim Manufacture. With items like seats, there was no slack - the operator lifts a set of seats off the conveyor belt and the car for those seats should be in front of him. Most production items allowed more flexibility than this, since small volumes of parts could be built up at the side of the line, but this was always limited. There was no room at the side of the line, or even in the stock areas, to build up large volumes of parts, and in any case this was not desirable. Large stocks were difficult to control, they may deteriorate and they constituted significant unproductive investment. The highest level of stock the plant carried on any major production item was sufficient for at most three days' production, and the emphasis was very much on rapid turnover.

(b) Mix and Selectivity

Apart from the total volume of vehicles, the other component of the schedule was the numbers of different models that the plant was required to produce. This was the so-called 'model mix'. Together volume and mix, though they are being considered separately here, constituted the overall schedule.

The assembly lines were manned to cope with particular model mixes. A given section of track would be able to deal with only a certain number of models at the top end of the range

- G.T.s, vinyl roofs and estate cars - as they involved more operations and required more time than standard models. Thus the mix had, within limits, to be the one designed to match the manning. However, it was never possible to keep the mix constant along the whole length of the moving track from Body-in-White to Pre-delivery. Whenever the schedule changed, or when cars were drawn off for repair, the mix changed too. For this reason, there had to be some means of continually returning the mix to that required. This was the so-called selectivity function.

In the factory's three main selectivity areas - in the Paint Shop and at the head of the Trim and Final Assembly lines - cars were drawn off the track and could be shunted about on short lines so that the emerging line would have an acceptable mix. There were also repair lines at various points which performed the same function, since cars were re-introduced onto the main line from repair lines so as to improve the model mix.

> Say, for example, that into the selectivity we didn't have any vans or estate cars. If we didn't have this and we didn't have that, it would be reported to me that this was the case and I may change schedule to avoid pulling gaps on the line - gaps cost money - so that instead of the scheduled ten vans an hour, I might reduce it to five and increase the saloon cars to 25. I do this very often every shift to avoid running at a loss.
>
> Q: How often might you do this?
>
> A: Well, once a day so far. It could be three or four times a shift... it depends on the flow of jobs out of Paint... Schedules department contact me to say that we have no vans. I get hold of the Scheduling foreman, and tell him to make a change and he will do that, and then I inform all my supervision. (Superintendent, Trim Assembly)

The selectivity areas also permitted a certain amount of flexibility of scheduling in what would otherwise have been a rigidly interdependent division of labour.

> ... there is a buffer section between Trim and us of the selectivity - so we can look at this selectivity and, say there are plenty of bodies there, we can pull at 62 even though Trim are only pulling at 60, and we will not run out of bodies. Or it may be the other way around. It may be nearly empty, so they can afford to run at 62 and we run at 60. (General Foreman, Final Assembly)

On the other hand, the means for selecting the mix were not always able to contain wholly the uncertainties of production, and an acceptable mix might not connect one section of Assembly with the next. This happened infrequently - the juggling was usually successful - but when it did happen, costs increased if extra labour had to be brought in to cope with a more demanding mix, and in any case the orderly flow of work between departments became disrupted.

> A lot of things can contribute to the wrong mix. You can run out of panels for a particular line of presses, and so you say we won't stop production, we will alter the mix. And so they will hammer away at one particular model - let's say the four-door frames. OK, so we flood the two-door lines until we eventually end up with all four-doors, and the Paint Shop won't take four-doors, and we have nowhere to store them.
>
> (Superintendent, Maintenance MS&B)

> Body-in-White, I understand, have problems on the framing in the back end of their shop, which is bringing about a lack of volume into my shop... That's where the mezzanine - which is the back-stop, if you can call it that - we might get away with it with what we've got on the mezzanine... In the mezzanine at this point of time

> we've got 90 cars. So it could be that we won't affect the Trim. But I've got about 50 vinyl roofs over there which are giving Trim a problem in build, but nevertheless I've got them and they're ready to go. So I said, well you can try and up the build on this particular model to-day which would give me more room for storage... From a scheduling point of view, anything that came into the shop on Friday night should go down to Trim on Monday.
>
> (Superintendent, Paint Shop)

(c) Costs

Moving to a consideration of cost and budget control, supervisors usually spoke of 'losing money' if they exceeded their budget. But costs were controlled, as is usual, on the basis of a materials and manpower budget. Except in areas like the Press Shop that used relatively little labour and where materials costs, such as scrap, could assume major importance, the one overriding cost was that of direct labour.

The overall budget for the plant, and for each department, was decided at Warley, and supervisors had to accept budget cuts imposed by central staff. However, operational responsibility lay with plant management, so that decisions to allow particular departments to run over budget - well over in some cases - were taken within the plant.

For a production department to be able to operate within its budget depended on its output, since materials and manpower were allocated in relation to a particular volume schedule. If output fell, then a production department would carry too much labour for the volume it was producing, and if additional workers had to be brought in to attain the schedule

then the same relative imbalance prevailed.

> It is some weeks since I went for 60 cars an hour, which is what I am supposed to build. I am operating more in the region of 58, 56 and 54, rather than 60. And since all the planning... is based on 60 an hour, by virtue of these emergency drops of schedule my manning standards and my achievements have been affected adversely. (Superintendent, Trim Assembly)

> On the sub-assembly side, the system of paying the supervisor is worked by what comes out of framing. Now if framing become inefficient, I'm inefficient, people at the back who supply framing are inefficient ... So this is where the control of cost is.
>
> (Foreman, Sub-assembly Capri)

The pressures transmitted through cost control also affected service departments, even though they did not produce a measured output nor employ so much direct labour. The reason was that their manning allowances were also based on a particular volume going through the production departments they were servicing.

> ... as a service area, I get paid on what production produce. Not producing anything myself, they tag me along with production. And, say for instance, I am allowed a hundred men to service the Escort saloon: instead of selling 500 saloons this week, we only sell 200, not because of my lack of service but because of other intangibles... they have lost money and so have I.
>
> (General Superintendent, Production Services, MS&B)

> If the volume is reduced, the schedule is reduced, then we've got an added cost. We shouldn't have 207 men because the lines are only pulling 58 an hour, which means we should probably only have 197 men. That's a cost we didn't create and we're stuck with it. (Superintendent, Quality Control, PTA)

Finally, there was a feature of cost control which introduced an important element of flexibility into work-flow relationships. Through a system of what were known as on-costs, costs incurred in a particular activity could be distributed outside the departments actually responsible. For example, if the Press Shop produced panels without a hole in them that was required for a particular item of trim to be fitted, rather than change the dies in the presses and interrupt the run, it might be easier to put a man on the job of drilling the hole in the panels in Trim Assembly. However, the latter department would have to pay for the additional labour, which would give them a cost above budget. This they would refer to as an on-cost.

Departments like Paint, which in any case had to bear few on-costs from other departments, usually insisted that all modifications to process would have to be paid for and properly authorised. In these departments, deviations usually called for a special project or method improvement. But in the big assembly and construction departments, a large amount of repairs and re-working of materials had to be allowed for on a continuing basis.

> We can't deploy costs exactly as per budget; it doesn't suit this particular plant. If we're getting a run of bad bodies from Body-in-White for one reason or another, we are requested to control this, and the only way we could control it would be to put inspectors to check the incoming bodies, which we're not allowed for, we've got no budget for it. So there we'd be bearing an on-cost ... And there are many instances like that.
>
> (Superintendent, Quality Control, PTA)

> There are repairs over which I have no control - direct control - but which I have to provide manpower to effect, for which I am not paid... And these amount to, in one

particular section, 50 percent of the labour employed in that area. (General Foreman, Final Assembly)

The systemwas flexible and informal. On-costs were not written into a department's budget - what tended to happen was that particular on-costs were recognised by plant management to be necessary in keeping production moving, and so were permitted. Such informality meant that while an on-cost might be allowed, and even regarded as part of the routine costs of the department, higher management could still bring pressure to bear on supervision because of it. Not surprisingly, many supervisors saw the system as arbitrary and unfair. Although permitting flexibility, it was also an indication of the failure of highly formalised control procedures.

We get many on-costs... There is no real system. If you had an on-cost, you should do it for 24 hours and then fail to do it, because by that time it should have been paid for by somebody or the other. Unfortunately, this doesn't work - why I don't know, it seems fairly simple to me. And if I stop doing within 24 hours all the jobs that I am not paid to do, I don't think we would run very long like that. (Superintendent, Sub-assembly Capri)

Indeed, it was often not possible to draw a clear distinction between true on-costs (i.e. costs that could be pinned down to another department's failure to meet the formal requirements of its task) and additional costs that might arise for any number of other reasons. This reflected the virtual impossibility of containing all the contingencies of production within the designed control systems. For example, service departments had to bear many costs from production where it was difficult to decide whether they arose from problems that were part of the routine in production departments or from problems outside routine.

> If, for instance, the plant produces a rather large amount of scrap, larger than normal, I have an on-cost for moving that extra scrap out. I also have an on-cost in getting rid of it... If people leave things littered all around, leave the place in a general untidy condition, we as a service department have to go and tidy it up, because we have got the equipment to move the racks and so forth. Again, it is an on-cost.
>
> (General Superintendent, Production Services, MS&B)

(d) Deviations and Engineering Changes

Another way of making the systems of production control to a degree flexible involved changes in the specifications of parts and manufactured assemblies once they were in production. These were known as deviations to process and engineering changes.

A deviation was usually a 'panic change' raised by process or quality engineers to deal with immediate process problems. They arose from two main sources. Parts bought-in from outside suppliers were sometimes not exactly to specification but had to be used as no others were available. When this happened, the parts would only be used after a deviation had been endorsed by a quality engineer responsible. The alternative was to re-work them, but it was usually not possible to bring them exactly to engineering specification, so a deviation would still be required. Secondly, a deviation might arise if manufacture or assembly strayed from process specifications. If, for instance, panels would not fit together to give a perfect seam, then a deviation would be raised, this time by the process engineers, to put into effect a repair to get over the problem. Deviations could result from serious difficulties with engineering specifications, but the majority

were relatively minor - a supply of rubber piping that was red instead of black, a screw that was supposed to have a chrome head but was plain, a panel that was supposed to come off the presses with a smooth edge but needed to be hand-filed, and so on. However, in all such cases supervisors needed the authority of a quality or process engineer to effect the deviation.

Engineering changes were similar to parts and process deviations, but were usually much bigger changes. Because of this, they had to be 'engineered in' - in other words, their introduction had to be carefully planned by the resident engineers and if necessary by development engineers from central staff. The majority of engineering changes arose as a result of a model change or face-lift to an existing model, although changes might also be introduced during the lifetime of a model. Lastly, engineering changes could arise if a deviation was found to be required as a permanent change.

> A deviation is raised often for two reasons: it's pending an engineering change, it's going to become fact, it's going to be written into process; or to cover a crisis at the time. ... For example, a deviation is issued if you were short of a certain part at a time, and you had an alternative that is perfectly satisfactory to the resident engineer... That is a temporary deviation and will not result in an engineering change. But there are other deviations that are issued for 90 days, which is possibly the maximum, and then it becomes an engineering change. (Superintendent, Trim Assembly)

> ... it's not a case of when a change comes through somebody clicks their fingers - it's in. The Tooling people have got to tool up for this... We have a status report showing all the parts that are affected, and whether the engineering change is in. We get from Parts Control a list to say

whether they want these changes, because it's no good us having a body that's up to the latest engineering change for the headlamp opening, if their headlamp is out of date on the Assembly side, because they wouldn't be able to fit it. It's got to be co-ordinated.
(Superintendent, Quality Control, Technical Services, MS&B)

4.3 CONCLUSION

The plant division of labour involved an extreme specialisation combined with close interdependence of functions. The systems of production control, which individually monitored production parameters, had to cope with the continual turnover of a very large stock of parts and with their co-ordination in manufacture and assembly. The supervisors who administered this system strove for stability, and had a variety of means at their disposal for returning volume, mix and physical dimensions to specification. Similarly, plant management, who bore operational responsibility, could distribute costs through the plant in a rather more flexible manner than was apparently allowed by the department-based budget system. None the less, Halewood was an 'industrial bureaucracy' where the imperatives of capitalist production, to operate at near-capacity while strictly enforcing productivity, meant that formal control systems needed to be reinforced, adjusted and interpreted by supervisors. Because of the pressure on people and machines arising from high line speeds, a stable and predictable flow of production was an ideal which it was rarely possible to maintain.

NOTES

1. Comparisons between plants were used quite cynically by the company, although this was widely resented by supervisors and middle-ranking managers. This point is taken up in section 6.3, where we examine supervisors' attitudes towards Ford of Europe.

2. For a classification of technology and a discussion of process technology, see Woodward (1965), Ch. 3.

3. This layout is uniform in Ford assembly plants. It is worth noting, however, that the pattern varies in other companies. For example, Volvo's famous Kalmar plant only assembles cars. The plant receives a complete body shell and the process begins at painting. Similalry, the Talbot assembly plant at Ryton in Coventry does not have a press shop, although it does manufacture a body shell from panels received from their plant at Linwood in Scotland.

4. When describing capitalist production, which came into existence prior to fully-fledged industrial production, Marx (1970) defined the two fundamental forms of manufacture: heterogeneous and serial manufacture.

> The organization of manufacture has two fundamental forms which, in spite of occasional blending, are essentially different in kind, and moreover, play very distinctive parts in the subsequent transformation of manufacture into modern industry carried on by machinery. This double character arises from the nature of the article produced. This article either results from the mere mechanical fitting together of partial products made independently, or owes its completed shape to a series of connected processes and manipulations. (1970: 323)

> The second kind of manufacture, its perfected form, produces articles that go through connected phases of development, through a series of processes step by step, like the wire in the manufacture of needles, which passes through the hands of 72 and sometimes even 92 different detail workmen. (1970: 325)

5. This was a rather tricky and cumbersome operation. As the body was being lowered, operators had to stand underneath, craning their necks, to guide the seating lugs and bolts into their locations on the power train. During the operation, cables were liable to be sheared and lugs bent. A more efficient and more automated method was used at Halewood's sister plant in Genk. Here the body moved on an overhead conveyor, which dipped down to allow the body to gradually meet up with the power train, on a ground conveyor matching the body's speed, in one smooth operation.

6. This impression came from the industrial engineers and production supervisors. Workers and shop stewards may have given a different picture, but they were not included in the samples. Nevertheless, the impression was supported by general observation in the plant (several grievances were witnessed, but none concerning the time for a job), by observation of the industrial engineers' jobs and by what is known in general of Ford's labour policies. (For an account of company policy regarding mutuality, see Beynon, 1973: 20, 134.)

Chapter 5

PERCEPTIONS OF THE WORK

When the factory system first brought workers together, immediate advantages were the economies of scale made possible when means of production (tools, buildings etc.) were used in common, and the capacity to place workers under the scrutiny of supervisors. Later, a central power source and, above all, machinery applied in an extensive division of labour were developments that enhanced the productive powers of capital enormously. Marx's account of this historical process, we noted in Chapter 3, emphasised two main points: that capitalist production has a two-fold nature, involving both the creation of useful articles and the exploitation of one class by another; and that production increasingly takes on an 'extended' character as collective labour expands to include professional and administrative skills. Marx combined these notions when he spoke of the relationship of co-operation that obtains between people who work for the reproduction of capital.

This is no spontaneous co-operation, but an enforced co-ordination accompanied by the progressive commoditisation of labour - the historical process whereby workers are transformed from employed craftsmen to 'detail labourers' to machine operatives. The exchange of work for wages is unlike any other exchange of commodities. Marx's crucial distinction between labour and labour-power demonstrated that while market relationships govern the initial rate of exchange between wages and labour-power (in which the tactics employed share common features with any sale and purchase of commodities), the purchase of labour-power is only the first stage in production. Workers must still be put to work. But labour is not a passive element, yielding value merely according to the expectations of the employer. It is a complex, concrete activity, which engenders

much conflict in the act of realising its value. Thus, structures of power and authority become an inevitable part of the labour process.

The development of a control structure and the form in which the capitalist labour process unfolds are related both functionally and causally. The higher the level to which workers' collective productivity is raised, the greater becomes the need for a 'directing authority' to harmonise fragmented efforts and skills. This, Marx suggested, is the 'work of control made necessary by the co-operative character of the labour process'. It is in the act of alienating workers' control over the labour process that capital accrues control to itself, and the co-ordination of work passes to a bureaucratic control structure.

> If, then, the control of the capitalist is two-fold by reason of the two-fold nature of the process of production itself - which, on the one hand, is a social process for producing use-values, on the other, a process for creating surplus-value - in form that control is despotic. As co-operation extends its scale, this despotism takes forms peculiar to itself. Just as at first the capitalist is relieved from actual labour so soon as his capital has reached that minimum amount with which capitalist production, as such, begins, so now, he hands over the work of direct and constant supervision of the individual workmen, and groups of workmen, to a special kind of wage-labourer. An industrial army of workmen, under the command of a capitalist, requires, like a real army, officers (managers), and sergeants (foremen, overlookers), who, while the work is being done, command in the name of the capitalist. The work of supervision becomes their established and exclusive function.
>
> (1970: 314)

Marx also provided insight into the problems employers encounter in putting employees to work when he distinguished constant from variable capital. Constant capital (machinery,

raw materials etc.) transfers only its own value to the product, and, once purchased, presents the capitalist with relatively few problems in realising its value. But variable capital, the value-potential in labour-power, is quite different. Not only is it variable in the sense of being the source of surplus-value, able to produce a value greater than that paid for it in wages, but the surplus-value actually realised will be dependent upon workers' resistance and employers' counter-pressure in the labour-process. Employers' preoccupation with the valuation of time, which has replaced the irregular rhythms of work normal whenever people can decide their own work patterns, has come out of the long haul through industrial capitalism, besides being boosted by the more recent development of work study.[1] And the obsession with a predictable pace of work is perhaps the chief tactic of controlling workers' resistance. Employers (as will be seen in the analysis of data from Halewood) are keenly aware of the calculability of their dealings with constant capital, as against the continual and unpredictable struggle they face in controlling workers.

The need to prevent embezzlement of materials by workers employed in domestic production and place work under the eye of the owner was often the immediate motive behind the shift from putting-out systems of production to the factory system.[2] But once the factory system had been established, Marx suggested, supervision did not play a major economic role in raising the productivity of labour. Marx saw in capitalism "a capacity for sudden expansion by leaps and bounds", and a system that continually revolutionised its methods. The principle means of doing this was the 'continual improvement of machinery and the automatic system'. Neither was technical improvement divorced from the other major means of raising labour's productivity, namely the intensification of work. In one instance, having discounted the claim of some employers that a particularly spectacular improvement in productivity had been the result of the increased vigilance of overlookers, Marx showed that technically more efficient machinery was the cause of the increase.

The machinery was being operated at higher speeds and hence with greatly increased pressure on workers. (See Marx, 1970:387-8)

Marx considered the alienation of labour and consequent dependence on wages to be the chief impetus of workers' industrial obedience. Given this basic feature of capitalist relations of production, the successful introduction of technical change (together with other methods of raising productivity) does not depend upon the 'work of control' done by supervision. Quite the reverse, the authority of the control structure depends upon the prior existence of the wage-form. Conflict between capital and labour tends to resolve itself into strife between workers and machines: skills become diluted, work intensified and the numbers of those thrown out of work swollen as capital replaces labour. Supervision provides the 'barrack discipline' into which these methods for the substitution of more for less productive labour are introduced.

In this vein, Baldamus developed an interesting refinement of the Marxist analysis of supervision. Baldamus distinguished controls that <u>stabilise</u> work effort from ones that <u>intensify</u> it (1961: 40-2). Any given control may have both functions in some degree, but would usually tend towards one or the other. Supervision is a stabiliser, rather than actually intensifying economic exploitation. Supervisors are the policemen of other controls, the 'controllers of control'. The supervisor contributes to the stability of effort by administering the controls that intensify labour, although this does not mean that supervision does not have an independently important role to play.

> It is therefore the stabilising function of effort controls that appears here as a separate mechanism, one that stands in its own right and cannot be treated as an insignificant duplication of the market mechanism. All that is usually described as the bureaucratisation

> of control contains this stabilising element as a basis for predictability and calculability in industrial administration. (Baldamus, 1961, p. 37)

The perspective on supervision generally advanced here - that the 'labour of superintendence' is very much a part of the whole system of productive labour, that the supervisor overlooks a production system of which labour is one part, and that he plays only an indirect role in raising the productivity of labour - is at variance with the priorities of much conventional discussion on supervision. The latter emphasis, derived from the Human Relations school and personnel management literature, views supervisors as the sharp end in a chain of formal authority, direct managers of the people who operate machines. Furthermore, there exists a 'problem of supervision' revolving around supervisors' role as group leader. The post-war period, it is suggested, has seen a decline in supervisors' powers - withdrawal of their right to hire and fire, to dock pay etc. - which, together with a fall in supervisors' relative technical cabability and market opportunities, have undermined their authority in relation to subordinates. The supervisor is a man adrift. But because the cohesiveness and morale of work groups is held to be a key factor in productivity, it is the responsibility of management once more to secure supervisors' allegiance to the firm and bring shop floor leadership in line with modern demands.[3]

There is much in this conventional picture of supervisory work that fails to ring true in a modern context - particularly in a plant like Halewood - and much in the Marxist analysis that succeeds. Marx suggested that the control of labour exercised by supervisors is at one remove when compared with improvements in automation and work-pacing technology as methods of directly raising labour productivity (and nowadays we would have to include production control and work study). The social basis of economic efficiency does not lie in the tactics supervisors use to

create a basis of organisational authority in work groups, but in the obligation to work (see prior account of Baldamus' theory, section 3.3). Problems of 'man management' thus recede in Marxist analysis. Labour remains a problematic element in production, but the Marxist view does not recognise any close ties between supervisor and worker upon which, as the personnel approach suggests, efficiency critically depends. Application of advanced technology is so far a superior method of boosting labour productivity, and thence capital accumulation, that employers resort to it whenever serious need arises.

This point too is now highly pertinent in the motor industry, where massive investment, particularly in labour-saving 'robot' technology in body construction, has become the precondition for economic survival of firms.[4]

As we describe below the nature of supervisors' work in the Halewood plant, these points will emerge. However, of recent empirical studies of supervisors' work, the one conducted by Thurley and Wirdenius (1975) deserves mention. They made the point that there are several kinds of supervisory job, which include that of the 'true' supervisor responsible for a production system involving manual workers, supervisors who spend a good part of their time on specialised work in addition to overlooking the work of others, and people (e.g. chargehands) who hold a position formally above manual workers but who have little real authority and usually themselves perform much manual work. Given such variation in task, Thurley and Wirdenius suggested that the only practical course is to think in terms of a <u>system of supervision</u> in which a differentiated body of supervisors, 'working together on common problems', collectively run a production process. This notion leads them to criticise the conventional idea that the 'problem of supervision' is one of leadership:-

> The idea of the supervisor in charge of his group of men, which was a very accurate picture at earlier stages of industrialisation, has lingered on, and is highly misrepresentative of many situations in modern technology, where supervisors are extremely dependent on each other and working together, with other supervisors and functional specialists. (1975: 53)

Thurley and Wirdenius also emphasised 'trouble-shooting' in their descriptions of supervisory work in manufacturing.

> Things going wrong, disturbances, problems arising that were not predicted are, in fact, among the core of the most important functions and activities in the supervisory job. (1975: 34)

Thus, the supervisor carries with him a "portfolio of problems" outstanding in his area, some of which are so obvious as to demand attention, while others he may decide to take up or leave in abeyance according to his own ideas of what is important. Attending to this string of production-related problems constitutes the greater part of his work.[5]

5.1 WORK PATTERNS

The notion of a system of supervision is particularly apposite in a plant like Halewood. As our data will reveal later in detail, and as has already been indicated in outline in the previous chapter, the supervisory structure in the plant comprised a range of different kinds of work. And while the situation in Halewood did not always mirror Thurley and Wirdenius's identification of particular categories of work, the basic ideas underlying their model held true. Supervisors interacted as much with each other and with specialist services as with workers, and above all it was the production

operation that was being directly supervised rather than labour doing productive work.

Foremen in the main production departments and inspection foremen corresponded exactly with the type Thurley and Wirdenius called a 'true' supervisor, overlooking the direct labour of manual workers. But other specific categories on their list did not fit the Halewood case so well. For example, there had been chargehands in the plant during the early 1960s, but they had since been eliminated from the job structure. (However, there was a category of hourly-paid worker known as 'C' men, who were paid at the highest manual rate. They were able to do most of the jobs in their particular section and were used as a labour pool, perhaps indicating a continuing need for the flexibility workers like chargehands provide.) The category Thurley and Wirdenius called managerial/supervisory matched two different kinds of job in Halewood, although in different ways. Firstly, there were the departmental superintendents. They did not supervise workers directly and were only one rank beneath production management proper, but they were responsible for the running of departments and were formally included in supervision. Secondly, there were the senior engineers and engineering supervisors, who spent a significant part of their time on specialised work, mainly engineering projects, although the latter headed the engineering departments and the former supervised the work of production engineers, the bottom rank in these departments. The production engineers themselves were not supervisors at all, so the inclusion of their specialised skills in the body generally designated as supervisory once more underlined the fact that it was a system for controlling production rather than merely overlooking workers. Finally, we might mention a variant of the 'true' supervisor category. Supervisors in Maintenance, the toolroom and other departments employing skilled workers, had discernably different jobs from those of production supervisors.

(a) Responsibilities and Procedures

With the exception of the Press Shop and its related services, where work was continuous, production and service departments worked two, eight-hour shifts. Shutdown was between midnight and eight a.m., so production had to be started up by the morning shift. Starting the lines involved considerable movement of labour, made necessary by workers being absent or late; and usually a period of an hour or more had elapsed before the schedule was settled at the level at which it would continue to run. The take-over between early and late shifts went more smoothly with the schedule set, but in any case levels of absenteeism and lateness were invariably lower on nights.

Problems could arise in the take-over between shifts, so supervisors left a 'line-up' for the man coming on - i.e. a written report of the previous shift's production highlighting any continuing areas of difficulty. In addition, supervisors on the early and late shifts generally overlapped by 15 minutes or so, to talk about the line-up. The remainder of the day was taken up in running this schedule: monitoring production output standards of quality and volume, controlling stock fed to the lines and attending to the very many disruptions and problems that arose.

Q: Would you give me a description of what you do in the course of a normal day's work?

A: Unfortunately of late we haven't had many normal days. They don't appear to have been normal to me. We start the day 15 minutes before the shift starts. They tell us what schedules we aim to produce. We then go down onto the shop floor and check the number of men we have; then report back to the general foreman and tell him whether we have enough men to operate the schedule - how many we need or how many we have to spare. In the main, the men go to the

jobs they have been doing the day before, unless they are the ones who don't do a regular job. Some are more flexible than others and you can put them on any job we have. After that, it is mainly seeing that everything does run. The first hour is hectic, from then on, if everything else is running right, if all our supplies of parts are sent, if we don't have any major breakdowns, it is a matter of just checking the quality of the job and the operators' performance. This doesn't sound very much, and I can't tell you much about it, but it takes me nine hours a day to do this! (Foreman, Sub-assembly Escort)

Departments were large, some of them employing as many as 500 hourly-paid and staff people, and the breadth of activities in a large production or service department was often considerable. Having overall responsibility for this operation, the superintendents and engineering supervisors were a key group of men in the plant. Information on volume schedules and quality and manning standards was collated in the superintendent's office for onward transmission to plant management. Anything that might seriously interfere with the work-flow - such as, breakdowns and schedule changes - fell to their ultimate responsibility. Superintendents also kept a watch on 'trouble spots' that on a continuing basis were being dealt with by foremen and general foremen, with responsibility to anticipate a build-up of problems to prevent them from reaching crisis proportions. Lastly, disciplinary action against workers and disputes with individual workers which were unresolved at foreman level were dealt with by the superintendent. Here, a general superintendent of Maintenance talks about his job.

The job we cover is the production services on the MS&B side. We are engaged in exporting quite a large amount of stampings to the Cologne and Genk plants. We also have a very large Press Shop, which we service. And

at the same time we have the assembly lines, which produce somewhere in the region of eleven hundred to twelve hundred body shells a day. This is the sort of area we cover from the point of view of servicing.

Now my job entails generally supervising the supervisors, and seeing that all our services, such as fork-lift trucks, the safe-keeping of all stocks, that they are in the right place at the right time on the production line and in the Press Shop. The warehousing of all the steel stocks - on an average we carry about ten thousand tons of steel in any one day. We feed six hundred tons of steel to the press lines every day, and of course we take the subsequent stampings away from the end of the press lines. We do a lot of other odd jobs. Such as, we hold the responsibility for baling all the steel scrap, disposing of all the scrap from the plant, for which we get quite a lot of money... I do all the major industrial relations for the department, if they reach my level. When they reach my level, you have usually got trouble anyway. And that is about it.

In a quotation like this one,it is interesting to note that the respondent is able to identify quite a large number of different activities, which reflects the integration of a vast number of production operations in one division of labour; and also his tendency to generalise about how he carried out particular functions, reflecting the need to respond to contingent problems as they arose in production.

The 'portfolio of problems' that comprised the bulk of supervisors' work, particularly the foremen and general foremen in production, caused them to be constantly on the move. Superintendents took periodic 'tours' around their departments to 'keep your finger on the pulse', but foremen and general foremen were on the shop floor virtually all the time. In the closely integrated serial division of labour

that obtained within, as well as between, departments, assembly or manufacture in one area frequently affected that in a following area, necessitating their close co-ordination. And although he rarely strayed outside his section, the production foreman walked several miles in the course of a shift.

> I am circulating constantly. I find myself spending quite a bit of time searching for information. This can take me anywhere. It can take me into the Press Shop, into the process engineers' department... We don't do an awful lot of paperwork. We do a card-check every morning - check on the late-comers. Take disciplinary action when necessary. Sign up the work that is sent out of the shop. But once the line-up is started, the work handed out at the start of the shift, it is progressing this work, co-ordinating the services to the job. (Foreman, Tooling)

> You're tearing about all over the place, because if I've got a card on the de-carder, which is at one end of the shop, my office is at the other end of the shop. Now, if there's a reject card on there, I've got to be down from there to there, maybe down there on a card-blanker which is at this end of the shop, which is about a quarter of a mile. I've got to dash from there down to the cardblanker and see what's going on there. Then the OBI presses are at the other side, and I've got to look after those as well. I've got a bike!
>
> (Foreman, Press Shop)

The pattern of production and production-related activity was also reflected in supervisors' interaction with colleagues and workers. Typically contacts were brief, verbal exchanges concerned with output, quality, materials usage and labour allocation - in other words, confined

almost exclusively to production matters. Contacts were impersonal, showing little evidence of the 'group maintenance' activities and close personal ties so prominent in Human Relations and personnel literature.[6]

Similarly, while we did not systematically look for evidence of one, there was no indication of a network of friendships extending beyond the plant. Respondents volunteered virtually no instances of meeting socially with their colleagues after work, or visiting each others' homes. Where relationships in the plant were friendly, they conformed with Blau's notion of 'bureaucratic friendship', that is, they were circumscribed by formal tasks. Confined to helping the friend out of an unforseen difficulty, relationships carried no obligation of any more onerous favours. (See Blau, 1955: 139 ff.)

Several respondents indicated that they couldn't become too personally involved with their colleagues because of the strain on any friendships the work generated. A 'light relationship' enabled them to cope with the disagreements that constantly arose when people exercised judgement on production matters. Indeed, respondents felt that they needed a 'degree of separation' to give them freedom to stand out against their bosses if necessary, as well as in disciplining subordinates.

Next, differences in the nature of work within the system of supervision, together with the pressure of immediate demands arising when effort had to be divided within a changing set of problems, can be shown by reference to two task dimensions: the levels of variability in supervisors' tasks, and their time orientations.

(b) Task Variability

The notion of variability, developed in the work of organisation theorists who see in organisation structure a pattern of relationships based on an underlying task or technological base, has been advanced as a generalised attribute of differentiated tasks. However, variability is itself complex. A systematic analysis of the concept is provided by Perrow (1970: 75-85). Following him, the variability in supervisory tasks at Halewood was distinguished by the perceptions of three variables: the frequency with which contingent events occurred, their level of uncertainty and their level of risk.[7] These were measured using Likert-type attitude items (Appendix C:xvii-xix)[8]

'Frequency of contingencies' refers to the frequency with which events not part of the normal routine occur (a high frequency indicates that the task is confined to dealing with immediate problems and that planning may be difficult or unnecessary). 'Uncertainty' is the extent to which the job itself or its contingencies have an unpredictable, unique character. And 'risk' denotes a high frequency of contingencies which can, however, be routinely dealt with.

Table 5.1 indicates mean scores for the three functional groupings of departments on these three task dimensions. If the scores are taken as three-point profiles, they provide discernably different outlines of tasks in these groups of departments.

There was a tendency for uncertainty to be regarded as relatively moderate, while the level of risk and frequency of contingencies were accorded somewhat higher scores. In other words, work was characterised generally by the occurrence of

TABLE 5.1 Task Variability by Departmental Groupings

	FREQUENCY OF CONTINGENCIES	UNCERTAINTY	RISK
Production	3.9	3.5	3.5
Service	3.3	2.8	3.8
Engineering	3.6	3.8	3.4
	$Chi^2 = 23.49$ (10 d.f.) sig. = .01	$Chi^2 = 23.98$ (10 d.f.) sig. = .01	$Chi^2 = 5.63$ (8 d.f.) sig. = .69

contingent events which were routine but which occurred at a relatively high rate. This indicates in mass production a technology that is essentially predictable, although one operating under a high pressure of work.[9]

> There isn't a great deal of routine, not routine as such. You can run from one crisis to another. The job is routine in itself, provided everything is running alright.
>
> (Superintendent, Materials Handling, MS& B)

It was production supervisors who experienced most contingencies, although their problems were mostly routine. Few of them created actual uncertainty for production supervisors, who always stressed that they met with very little that they had not experienced before. A supervisor either knew what to do himself or he informed the appropriate service. One or two foremen even complained of the monotony. However, with a high frequency of contingent problems occurring, most of which involved the co-operation of other departments, there was a considerable degree of residual uncertainty about the performance of the departments upon which production depended. In other words, the pattern of response from production reflected the technical structure of fragmented, inter-dependent work-flow.

Profiles of the engineering and service supervisors' tasks were not altogether the expected ones. For engineers, there was a pattern of a moderately high frequency of contingencies and uncertainty coupled with a lower level of risk. Supervisors from service departments recorded the reverse pattern of responses, with the highest risk but the lowest frequency of contingencies and uncertainty. An explanation of this pattern may lie in the different kinds of contingent problems emanating from production with which the services and engineers had to deal. Of the services, only Maintenance dealt with uncertain problems when they repaired equipment, and even here many breakdowns sprang from familiar causes. But for Materials Handling and Quality Control the problems were even more routine. Quality Control restricted inspection to a prescribed set of 'quality items', and Materials Handling worked to schedules for moving materials from the stores to production areas. By contrast, the engineers absorbed problems from production that were relatively varied, but - with the exception of the process engineers - the rate at which they did so was relatively slow. Thus, the risk element of their job (i.e. the frequency of routine contingencies) was lowest.

From what we know of the production system, the scores on the FREQUENCY OF CONTINGENCIES factor would perhaps make more sense if the engineers' scores were lowest, rather than lying between those of production and service - Table 5.1. However, differencies in perception may account for this. For both the services and engineers, contingencies were mostly the calls they received from production. Service supervisors were based on the shop floor, and their service was often requested through a formal system or on the basis of a fixed schedule. Engineers, on the other hand, were called down to the floor from their offices, usually by telephone. Thus, engineers were apt to feel pestered by calls from production, and as compared with the services they may

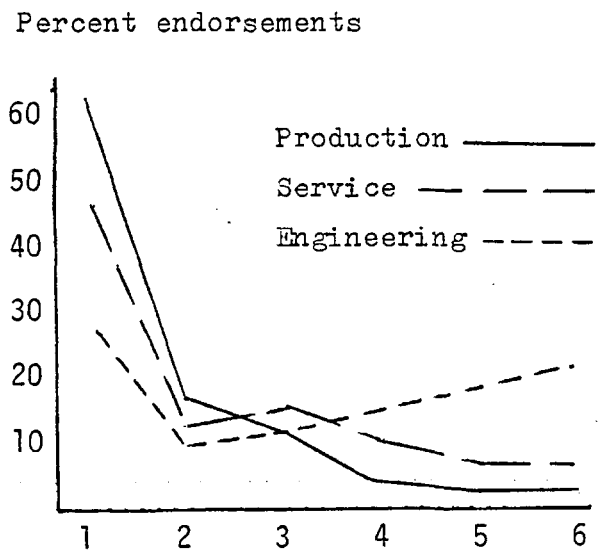
have been inclined to exaggerate the frequency of requests from production.

(c) Time Orientations

Official goals also played the dominant part in the assignments of time with which respondents organised their day. Only the engineers occupied a communal office, where the work could be relatively easily conducted as a social activity. But shop floor supervisors were preoccupied virtually exclusively with production matters. Superintendents and some general foremen worked from offices, although their day was hardly less dominated by the urgent needs of the production system.

In the random-sample interviews, respondents were asked what proportion of their time they spent on the minute-by-minute demands of the job, on problems an hour or more ahead on problems occurring later in the day and so on (Appendix B:iv). Figure 5.1 shows the responses, which provide respondents' time orientations.[10]

FIGURE 5.1 Time Orientations by Departmental Groupings



Scale points (109 d.f.)

1. F=19.06 sig.=<.01
2. F= 1.90 non-sig.
3. F= 0.79 non-sig.
4. F= 8.99 sig.= .01
5. F=21.20 sig.=<.01
6. F=30.49 sig.=<.01

Scale

1. Minute-by-minute demands
2. An hour or so ahead
3. Later in the day
4. Later in the week
5. Up to a month ahead
6. More than a month ahead

The overall pattern of response, with its emphasis on 'minute-by-minute demands', shows the decisive influence of production requirements. However, the differences between departmental groupings were marked. Production supervisors spent a great deal of their time on immediate demands of their jobs, service departments were under less immediate pressure and engineers under less still. In fact, production supervisors' most common way of answering the question was to assign 60 or 70 percent of their time to the minute-by-minute demands, and then simply split up the remaining time evenly among the other categories. Problems involving a longer time span were very much a residual category for them.

Planning was something that foreman and general foremen either did very little of, or if they did plan it was in such a way as to take up no time - 'planning is in your mind all the time'. Indeed, the time scale used in the question may not fully have allowed for the predominance of minute-by-minute demands, since many problems that would have an impact later in the day needed immediate attention when notified to shop floor supervisors. As one foreman put it, 'you run around all the time keeping an hour ahead'.

> Nothing comes up so far as a month ahead. There's no information. All the years I've been here, it's only happened a few times.. on the model mix.
>
> (Foreman, Final Assembly)

> I only do any planning if the superintendent is going on holiday. It's day-to-day in the Pre-delivery area.
>
> (General Foreman, Pre-delivery)

> You can't wait till the problems crop up. You don't think even an hour ahead, only if there's labour going off (early) or if the mix changes.
>
> (General Foreman, Trim Assembly)

Although superintendents in the main worked from their offices and attended around 15 hours' worth of meetings per week, they reported little more time devoted to the longer term categories than did the foremen and general foremen. Superintendents spent 47 percent of their time on 'minute-by-minute demands'. (The breakdown by hierarchy is not shown, for although some of the differences between hierarchical levels were statistically significant, none was very marked.) Only the engineers said that they spent a significant part - 21 percent - of their time on problems likely to occur more than a month ahead.

> The first hour in the morning is when you are manning up, it's when you are on the minute-by-minute demands. 'Later in the day' might be work allocations for foremen. But you spend 30 percent of your time on that last category, 'long range planning'.
>
> (Engineer, Industrial Engineering PTA)

> All of us are involved in the first two. Priorities change according to production demands, and you often have to concern yourself with minute-by-minute demands. But for the last six months, I've been on a project, so I would now spend 90 percent on the last one, long range planning. Normally I spend a lot more time on the minute-by-minute demands.
>
> (Engineer, Layout Engineering MS&B)

As we shall see later, engineers' project work, which was what they had in mind when referring to 'long range planning', was an important basis of their professional work ethic.

The average time that engineers reported they spent working on 'long range planning of more than a month ahead' would have been higher but for the responses of process engineers, who were by far the closest to the immediate

demands of production. The time orientations of these engineers were much the same as those of the service supervisors.

> You spend 50 to 60 percent of your time on these first two categories. You don't anticipate the rest - only if you've made a balls-up.
> (Senior Engineer, Process Engineering /Assemblies/ MS&B)

> Production are on the 'phone every five minutes. There's not much planning. (Engineer, Process Engineering PTA)

> The majority of the time it's the first item. Crisis problems on the floor. Just a few percent on the remainder.
> (Engineer, Process Engineering /Stampings/ MS&B)

> 'Minute-by-minute' is too much. There's no time to sit back and plan. We are over-ridden by demands, by trivia, as against our real work. This just slips into the background. (Supervisor, Process Engineering PTA)

This pattern of time orientations reflects the structure of respondents' 'portfolio of problems'. Problems requiring immediate attention or that had to be watched continually - such as the breakdown of equipment, materials shortanges, operations that were falling behind schedule or producing poor quality - seemed, as soon as they were resolved, to be replaced by other problems of equal immediacy. As a result, the less urgent aspects of the work rarely received attention. They remained permanently at the bottom of supervisors' lists of priorities. This often led supervisors, particularly foremen, to feel that they were merely putting out fires, and were not fully in command of their sections.

5.2 SIGNALLING

The supervisor's job involved not merely an array of problems but the ranking of problems, i.e. judgements of what must be taken seriously, what was less significant and what could safely be ignored. The supervisor's task of constructing priorities from the very many demands on him, and of continually up-dating the set to cope with changing circumstances, can be considered in terms of the notion of signalling. Supervisors had to learn the significance of the signs reaching them from their work environment and to become skilled in interpreting what was and what was not important when all might look important. They had to be able to judge what would count as significant, as well as the discretion they were allowed and could create for themselves.

In order to get an initial idea of the range of demands perceived by supervisors and the priorities assigned to them, a question was asked examining the influence of particular people and groups on respondents' judgements of how well they were performing their jobs. The basic idea was to see who was important and who less so as 'salient others' for respondents. All the references were controls personally transmitted by the sources concerned, except for the single control 'statistics'. Half were hierarchical references: 'upwards' to bosses and management and 'downwards' to the workers. But the others, such as meetings and contacts with other supervisors, were not specific in this way. The 'salient others' are listed below in Table 5.2, and the question may be found in Appendix C: xi.

Because virtually all references were regarded as at least fairly important, the question did not discriminate very well. (Only the variables 'statistics' and 'operator

TABLE 5.2 Influence of 'Salient Others' for Performance Evaluations by Departmental Groupings

	Percent endorsing 'very important' category			
	Production	Service	Engineering	All respondents
My immediate boss	56	70	60	61
The man immediately above my boss	33	53	33	39
Other sources in management	20	37	17	24
Statistics (costs, schedules etc.)	73	63	33	58
Meetings in which I take part	33	43	23	33
Operator performance	88	73	21	64
Feedback from people in my department	60	53	37	51
Feedback from people in other departments	38	37	43	39
Personal satisfaction	75	90	67	77
Good relations with people who work under me	70	87	59	72
Mean endorsement	55	61	39	52

performance' provided statistically significant differences between departmental groupings.) This problem was partially overcome, and distinctions made possible, by considering only responses in the 'very important' category of the scale of influence. The table shows this distribution, broken down by the usual functional groupings.

Generally speaking, the reference groups of most importance were respondents' immediate boss, their subordinates and their own personal satisfaction. Considerable weight was also attached to quantifiable targets ('statistics') and to intra-departmental contacts. Inter-departmental relationships were regarded as less important than these basic references. Thus, the performance of operators, good relations with the operators and with the immediate boss were all sources that received between 60 and 70 per cent of endorsements in the 'very important' category; 'statistics' and intra-departmental feedback were accorded between 50 and 60 per cent of endorsements in that category; while higher management, meetings and feedback from people in other departments received less than 40 per cent of endorsements.

If we can take it that the list of 'salient others' in the table is not too incomplete nor too biased, mean scores for the three sectors indicate the extent of involvement in the supervisory system. On the whole, service departments appeared to be most locked into the net of lateral and hierarchical relationships that comprised the system. We should expect this, given their direct responsibility for services to production. Production supervisors themselves recognised only a little less salience in these sources. But the engineers were much less involved than either of the other two groups.

While production supervisors' overall recognition of salient authorities was relatively strong, their endorsements tended to be rather selective. They were quite acutely aware of sources that directly affected them (operator performance and 'statistics'), but far less interested in some sources to which others often attributed great importance, notably the formal command chain. The first three items in Table 5.2, which refer to successive levels in the hierarchy above respondents, showed production supervisors displaying

considerable independence from management. These responses reflect the fact that shop floor departments ran their own show. Higher management's requirements were specified in the volume schedules, the quality tolerances and in the budget. Provided these were met, higher management's expectations were taken care of. If they were not, then pressure on departmental supervision was exerted via the superintendent, rather than through managerial intervention on the shop floor, and even superintendents did not make a practice of interfering unnecessarily in the running of foreman-areas.

It was also noticeable that 'operator performance' was by far the most important sign production supervisors looked to for an assessment of how successfully their work was progressing. It was markedly more salient than 'good relations' with subordinates, underlining the point that in production supervisors' scheme of things the workers' part was to operate machinery. Personal relationships were only important as a contributing factor, and under a powerful system of production control personal ties played a role of secondary importance.

Service supervisors' endorsements were the most 'balanced' of the three groupings. They were more concerned with superordinates' judgements of their performance than were the other two sectors, which perhaps indicates their responsiveness to these influences. By contrast, production (because theirs was the organisation's central goal) and engineering (whose work had a professional character) adopted a comparatively self-contained, single-minded approach. Service supervisors also showed most concern for 'good relations' with their subordinates. The subordinates were mostly men who were themselves skilled - fitters, electricians, drivers, toolmakers etc. Harmonious personal relationships probably

were important in supervising such workers, when compared with the supervision of production workers (whose jobs were dominated by the production control system) and production engineers (who were relatively autonomous, employed professionals).

Finally, the pattern of engineers' responses gives an insight into the limits of their occupational autonomy. They paid least attention to nearly all of the reference groups: to sources of information in the hierarchy (apart from their own boss, who was himself an engineer), to production schedules, meetings, operator performance and to feedback from people in their own departments. Their responses perhaps reveal the engineers' relative isolation more than they indicate a level of professional autonomy. On this point, it is worth noting that while the engineers thought 'personal satisfaction' to be the most important sign of successful job performance, they were far less interested in even this factor than were the production and service supervisors.

It hardly advances the argument to suggest that efficient and successful supervisors and engineers might be defined as the ones who learned to recognise 'appropriate' signals. This begs all the most interesting questions: under what precise circumstances do people learn to respond to some cues and ignore others? what are the crucial cues? how do people adjust to changes in the significance of cues? can those who recognise an appropriate cue always act on it effectively? and how do they differ in these capabilities from the less successful?

With the benefit of hindsight, it is possible to identify cases in which management very clearly failed to respond to critical signals. For example, in 1979 Ford U.S. was forced to re-call for repairs many thousands of cars

because of a fault in the automatic transmission. The fault, a highly dangerous one, caused a car to jump from the parking into drive gears, and was the result of inferior materials having been used in the gearbox. Production engineers' reports existed which pointed out the potential danger, but they had been ignored by higher management anxious to cut costs - which in this case ironically amounted to savings of a few pence per car. However, it is often rather more difficult to pinpoint incompetence, not the least where outcomes are the result of struggle and of 'definitions of the situation' imposed by powerful groups. If, for example, a firm's management ignores pressure from the workforce for discussion of particular issues, and it (the management) succeeds in submerging the issues, we might be inclined to credit it with an astute manoeuvre. But if not, then equally management might be blamed for having missed important cues manifest as discontent in the workforce until they had built up to explosion point.

Later on we shall show that inefficiency, as perceived by subordinates, sometimes resolved itself into a self-imposed isolation from involvement with the shop floor. Superintendents in particular became reluctant to expose themselves to operational problems. However, to take analysis to the point of being able to distinguish the full detail of signalling mechanisms would have required more systematic observation of supervisory activity and the work environment than we were able to provide in this interview study.

An approach to signalling avoiding the question of efficiency can still be cast in terms of the general problems people experience in coping with a stream of demands. We saw in the above responses one or two patterns whereby people limited the magnitude of their problem. Production engineers, in the position of providing specialist skills, experienced

perhaps the least difficulty. They paid relatively little heed to most reference groups, relying instead on their own personal judgement. Similarly, although for different reasons, production supervisors tended to ignore all but the immediate cues revealed in production figures.

> (Cost) is a pressure, but largely the pressure is taken off us by Industrial Engineering department. Anything they say I can do, any questions that arise from costs really are their responsibility. My responsibility is to keep scheduling within costs.
>
> (Superintendent, Sub-assembly Escort)

Service supervisors, on the other hand, appeared to admit the widest range of salience to reference groups.

To the observer, perhaps the most puzzling apparent paradox in supervisors' responses to the system of production controls lay in the contrast between interventionist and formal responses. Frequently when common sense led this researcher to expect supervisors to actively intervene, in fact all they did was to carry on as if no contingent problem had arisen. At other times, supervisors did attempt to interpose a modified response. Clearly, a detailed knowledge of the production system was required to understand the reasons behind this kind of activity.

A paint repair foreman interviewed provided an interesting example of a signal being ignored which apparently cried out for attention. The foreman was in charge of a small section in the Pre-delivery department that carried out minor repairs to the painted body surface. He might have been expected to monitor output from the Paint Shop, since an unusually large number of quality faults in their operation would overload his section. In fact, the foreman acknowledged that in the previous few days the Paint Shop had flooded his area with jobs that had a persistent quality fault, but he

had merely carried on with his job as usual, repairing only those faults allowed for in his manning allocation. He pointed out that the Production Manager on the night shift had decided to allow these cars through the quality checks in order to keep the lines moving. Cars took two days to reach this foreman's section after painting, so there was sufficient time for management to decide where repairs should be made. The foreman knew that there would be no repercussions if he let the cars through with the faults. If management had meant him to deal with extra repairs, they would have allocated him more men, and men with the necessary skills. The idea of getting in touch with the Paint Shop to see what was happening had never occurred to him. [11]

Knowing when to observe the form and when to cut through procedure was a critical operational skill, and required long experience of production conditions. Nevertheless, there was always the chance of being left on a limb if unorthodox methods were used, even if they were necessary to produce the results senior management demanded.

> ... There was an example yesterday. The assembly line were putting out panels at 10.30, and our lunch break period is from 10.30 to 11.00. All the other service departments were at lunch at that time, and so I took a panel over to the assembly because they were still working, and I got them to build it. And they said this panel was alright so I could run without getting the panels into Quality Control and getting a sample of it... And after that there were the arguments with the red tape, because when you set any new dies you have to put the panels produced through so that Quality Control can compare it with their samples and say 'this is alright' and mark it as an OK sample. Now I cut right across that by producing, selling it to the assembly and running without sample. And many, many times I do this

> and it creates a lot of problems. Fortunately, if it's the right decision I get away with it. But if I should make a mistake, I haven't got anybody to call on to back me up because I know what I'm doing is wrong. I know it is incorrect, but if I didn't do it the assembly would stop.

Finally, because the system of supervision was one for implementing a fragmented array of production controls, supervisors not only had to perceive and rank the priority of demands, but they had to do this given conflict between different demands. Neither were these only technical parameters that could be weighed dispassionately. The demands also came from interest groups and powerful managers. The supervisor was thus in a double-bind. If he resisted the pressure for a particular course of action and his judgement was subsequently proved to be less than successful, he could never show that his way was the best given the need to reconcile competing demands. Conversely, if he acceded to, say, the demands of senior management for a high schedule but quality turned out to be poor, the argument that he had warned of this would be no defence at all, as this Paint superintendent explains.

> Depending on what the headcount is, we work the job accordingly. But that is a source of pressure. You've got to weigh it up, and you've got to do it quickly. You can't wait very long because the Plant Manager is on the 'phone - he wants to know what you are going to pull, he wants to know what schedule you're going to give him... And all he's looking at is heads. If you've got the heads to do so-and-so, 'Are you doing it?' 'Well, no sir, I'm not at the moment because of this because of that.' And I've got to juggle. Cut here and cut there. But that's an everyday problem, that. It's something you have to do at the start of every shift.

This is the problem of operational control. Supervisors were responsible for the operations giving the results senior management wanted, but supervisors could not monitor the job by results alone. They had to reconcile incompatible demands, balance the claims of different groups. And it was pointless their robbing Peter to pay Paul - achieving volume at the expense of quality or cost - since other sources of censure would quickly take action should any aspect of performance slip. Thus, there were very great pressures for supervisors to become closely involved in the running of production.

5.3 'THE HOURLY PAIDS'

Despite supervisors' work of co-ordinating services, and the considerable control the production system exerted over workers, an important part of superintendence remained the direct control of labour. The subject of workers was rarely absent from supervisors' thoughts, and their attitudes to the labour force revealed something of the conflict inherent in the labour process.

Halewood has experienced several distinct periods when the local market from which it draws labour has swung back and forth, from powerfully favouring employers to relatively favouring workers; and although a docile labour force has by no means been an automatic consequence of the former state of affairs, these influences have had an effect on industrial relations in the plant. In the 1960s, Ford was one of the first of the big companies to be attracted to the Merseyside. At that time, unemployment in the area was relatively high, while government schemes offered financial incentives to firms intending to create employment. In the first few years of

its operation, the plant at Halewood was an important source of local employment. But as other large companies opened up subsidiary plants, Ford lost its pre-eminence, and at the time the first interviews were conducted, early in 1970, the plant was having to compete for labour.[12]

In 1970 there was much talk, among Halewood's managers, of the mistake that had been made in building the plant in Liverpool. It mostly stressed the problems caused by the workforce. Many managers felt that work in the docks that was traditional locally, with its principle of the independent regulation of work by gangs of workers, had rendered the labour force unsuitable for the discipline of the assembly line. It was also believed that workers were used to showing up for work four days out of five - another hangover from the intermittent patterns of dock-work - which accounted for the high rates of absenteeism then being experienced in the plant. In any case, the Liverpudlian character was too lively, some managers felt, and they placed the blame for the serious production problems Halewood was then experiencing on the 'cowboys' in the labour force.

A majority of respondents interviewed said that more of their problems came from workers than from any other source. Respondents were acutely aware that the labour market then was relatively favourable to workers - as good as it ever had been on the Merseyside - and they strongly resented having lost the power to be selective. When the plant had first started operations, many mentioned, they had employed the 'cream' of labour, but the arrival of other large employers signalled the change. During 1969, the company had started taking on 18-year olds, whereas the previous minimum age had been 21, and this was regarded as both a mistake and a sign of the times that younger and therefore less stable workers should have to be employed.

All direct workers' jobs were timed, which provided the basis of manning allocations - the most important technical control of the labour process. The allocations were the so-called Current Works Standards, and it was a major part of the shop floor supervisors' work to organise labour in accordance with works standards.

Supervisors always stressed the necessity, in a continuous-flow production system, of using works standards that kept labour working steadily. Indeed, supervisors rather dreaded the possibility of workers being underemployed.

> There is nothing worse than having half a dozen men and you're worrying all the time that they are finished, and it can be niggling at you. If you have an area which is finished an hour or two before the shift, it can niggle at you. Better to have steady work all the shift.
>
> (General Foreman, Sub-assembly Capri)

> If you're in a continuous production process, then you want a work standard that will enable that man to work at a constant speed all day, and maintain it without unnecessary fatigue. (Foreman, Quality Control PTA)

Production supervisors preferred standards to stretch workers a little. Obviously, a standard no-one could achieve was of no use. But a standard which was 'fair' - a term used frequently - was one which kept workers fully and continually occupied.

> The looser the standard, the more they try to beat it - and then of course the quality goes down. A reasonably fair and not too loose standard, then they know they can't beat it a great deal - they can make a few minutes on it - so they just work at a pace expected of them.
>
> (Foreman, Sub-assembly Escort)

> Q: Do you personally prefer to work to tight or loose standards, or none at all?

A: Let me eliminate that one first of all. No standards at all: I'd have no control over my area. Absolutely no control. I mean, labour are not like they used to be. Just raise a whip in the old days, and they bowed down. But not now. What you say, with no standards, you'd just leave it to the men to do as they pleased - and they would do as they pleased. You'd have no control at all. Now as for the other part of the question, would you prefer loose standards or tight standards? I would prefer a tight standard. If you have a loose standard, your men have got so much time on their hands you just don't control them again. But, I mean, I wouldn't accept a tight standard - but that's a funny question. A tight standard can be the right standard. (General Superintendent, Trim Manufacture)

I like a standard that is achievable, because the only incentive that the operators have on the floor - and they go for this - is if they can get the rate in, they can stop and smoke a cigarette. They can't really smoke as they are working in the Press Shop, because they have gloves on, are covered in oil and this sort of thing... Now if the rate is loose, it's no good because the rate is too easy for the men... It's embarrassing to have them stand around doing nothing, so I don't like a loose rate. It's got to be within reach and attainable, but not too easy. That is what I mean by a fair rate.

(Superintendent, Press Shop)

Although direct production workers were governed by works standards, hourly-paid workers in service departments, such as maintenance tradesmen and the drivers of internal transport, usually did not have timed jobs. One exception was the quality inspectors in the Assembly Plant, who had asked for their jobs to be timed. They had complained that their supervisors were demanding too much work from them,

and a works standard had been negotiated (and rather reluctantly agreed by the departmental superintendent, since he maintained that inspection, because of its intricate nature, should not be timed work). At the time of the research, about half of the inspectors in the PTA were on timed jobs. It was an interesting case of workers' and managers' attitudes towards work study being reversed, while their basic motives of course remained the same.

Although workers provided a human commodity and remained the most variable and uncertain element in supervisors' jobs, it would be wrong to characterise our respondents' attitudes towards workers as wholly critical. Several of them suggested that there was nothing easier to blame than the labour force when plant performance was under fire from corporate management. The Liverpool labour was not afraid of hard work, they said, would work well if dealt with fairly, and in any case supervising people should mean making something of the labour force you have rather than resorting to sacking people.

Many respondents compared their powers of discipline and hire-and-fire with that wielded by supervisors in the inter-war years - 'the old bowler hat type of discipline' - and although they wished for a return to the consequences for workers' behaviour of that discipline, they said they did not want a return to the days when people were 'ruled by fear'. Indeed, one way in which supervisors were able to rationalise their feelings about the success of the German plants with which they were continually being compared was in terms of the powers that they supposed German management to have over the immigrant labour employed there.[13]

> Well again we are told by people in Cologne that we are grossly inefficient and that we can't control the men, and I might go along with that and say that we haven't

> got the social and economic conditions that make it possible to frighten anyone in this country. With the foreign labour in Cologne you can do this. If they are out of a job, they lose their work permit.
>
> (Foreman, Sub-assembly Escort)

Another factor of which many were aware was the constraint imposed on management by the sheer size and complexity of car manufacture. Although many respondents regretted that they were unable to get rid of the 'bad apples' in the work force, they also saw that this sort of direct action was not always possible in a company the size of Ford, and that if workers took advantage of this they were hardly to be blamed. Supervisors would justify the company's 'soft' attitude towards industrial relations in terms of the consequences of a walk-out for an integrated production system like Ford's

A few of our respondents even recognised the appalling monotony of working on the line. They sympathised with the tricks workers would resort to in order to gain a little control over their jobs,[14] and in a sense admitted that management's rationality could not be the same as that of the workers.

> I have fairly strong views about labour, yes. I think the big problem with the labour at Halewood is the fact that the job is very monotonous on the lines... I personally wouldn't like to stand on a production line all day, fitting two offside wheels to every Capri that passed me. I don't think you would either! ... At the moment here, let's face it, the labour is considered as part of the machinery, and we have got to get away from this line of thinking. (General Superintendent, Maintenance MS&B)

> It is not the men's fault. If they can get away with it, they will. It is human nature. The reason I work at the pace I do is because the job demands it. I have done it for five years,

> and it is part of my nature. We should criticise it, but whilst we are criticising the labour we should do something about it. (Superintendent, Maintenance MS&B)

However, having said this it remained true that supervisors' strongest feeling by far was one of resentment that workers were not disciplined. More than two-thirds of the men interviewed felt that the company had been 'too soft', that it was 'frightened of the unions' and that 'the attitude of the man on the line' prevented them from reaching their output targets. Many too endorsed a stereotype of the local character, reflecting its mainsprings in a working class community. Perhaps hard workers, Liverpudlians were careless and irresponsible; not status conscious, being off work was no stigma. Local people were also hostile to employers - 'afraid of making Henry Ford too rich'. This was often contrasted with the supposed ambition and materialism of the Dagenham work-force.

Fox (1971: 72) has contrasted the commitment of managers with the alienation of workers, noting that there are 'few perspectives more ironical than that of a deeply committed management recoiling with puzzled contempt from the manifest indifference of their hourly-paid workers.' The majority of Halewood's supervisors adopted precisely such an attitude of 'puzzled contempt' towards the plant's manual workers. Moreover, technological constraints had a very powerful influence on attitudes towards industrial relations. Immediately above we were quoting maintenance superintendents, themselves technically qualified men who supervised tradesmen. But respondents supervising manual workers in the production departments tended to see nothing rational in workers' behaviour. Most of them had dramatised examples of workers doing the simplest of jobs the wrong way, causing damage, acting like 'bloody-minded idiots'.

> At first you tell a fellow what you want, and he seems

enthusiastic and he's doing it efficiently. You go back an hour later and he's doing it the way he was before. You say to him, 'I told you an hour ago that's how you should do it - this is the way to do it.' And he agrees: 'Oh yes, yes. I'm sorry, I forgot.' So you leave him, thinking he's doing it the way you told him to. You go back a day later and he's back doing it the same old way again, and when you tackle him he just grins at you and says he's sorry and he'll do it properly. And the same thing happens again and again, and you wonder whether he will ever get the message. You wonder who is conning who.

My biggest problem is extracting from the hourly paid man our pound of flesh... One would reasonably expect of an intelligent man that you say to him, 'Here is your station, here are your tools, this is how you do it.' And you would really expect that man could do that job henceforth without any problems. But this is not the case.

(Superintendent, Trim Assembly)

We have a labour problem now on an area that carries about 30 men. And they are working as they call it 'to rule'... They say they can't possibly do more than seven units an hour, and I am saying they can do ten an hour... They say it is working to rule, but as far as I am concerned it is go slow. (Superintendent, Final Assembly)

Apart from such general uncertainty in the managerial control of the labour process, there were two, more specific ways in which workers' behaviour could interfere with the smooth running of production, particularly in departments that were major users of unskilled labour. The first of these was absenteeism and lateness. 'Bad timekeeping' was virtually the sole cause of schedule changes and the considerable movements of labour that were necessary when the lines started

up in the mornings.

> The only change to schedule we make in 99 percent of the cases is because of absenteeism. It's not that we don't employ enough people - we don't employ enough people to accommodate the time they are going to have off. We make no schedule change other than that. With the proper labour attendance, we could run the same tomorrow just the same as we ran yesterday... I would dearly love to come here and run the same schedule every day. It would solve the problems.
>
> (Superintendent, Sub-assembly Capri)

> This morning we set out to do 58 an hour. It was hopeless to try and do any more because we wouldn't have had the labour if they had all been in. We ended up with 54 an hour. (Foreman, Trim Assembly)

> I work a 12- or 13-hour day, which I think shouldn't be necessary anyway. I think we are all in the same boat. Half the time I am doing the general foreman's job, he is doing the foreman's job. It all revolves around one thing. I keep saying labour shortage, or labour problems. It all revolves around labour shortage. If you have got the regular men on the regular jobs day after day, you haven't got a problem. We can do the things we should be doing, which is getting the cost down.
>
> (Superintendent, Final Assembly)

Labour pools, consisting of workers on the top manual grade who were able to perform a variety of production jobs, were rarely sufficiently large to cover all necessary movement of labour, and foremen in areas short of labour had to borrow men from other areas. Where the production system had more of the characteristics of a process-type of technology, problems caused by absenteeism could be even greater.

This did not apply so much in the Press Shop, where relatively little labour was used and their skills (mainly machine-feeding) were interchangeable. But in the Paint Shop, there was both a process-type technology and a high concentration of quite skilled workers.

> Absenteeism - this is probably the worst form of pressure we.. it disrupts, you see, more than anything. I might have six or eight sprayers short, absent. I could replace these sprayers by people we consider are tradesmen - sufficient to do that job. But it's not quite the same. They haven't got the experience. Sanders - you say, 'Oh well, sanding is easy. There's nothing in sanding,' people will tell you. But it's one of the little sections that plays a major part in the finished product. And it's who's absent that gives you the problem. (Superintendent, Paint Shop)

The second major uncertainty caused by workers was their reluctance to be flexible in the event of a change in schedule or if they were asked to move to another section. If the schedule was changed, then the mix automatically changed; or if production ran short of an assembly item for a particular model they could increase the volume on another model in order to sustain the overall volume of cars, but again the mix would change. When this happened, manning allocations might have to be changed, and in any case the rhythm of work was broken. Workers whose jobs were affected in this way naturally resisted.

> It might not affect the Body-in-White - to them a dustbin could come down and they would just metal finish it. Paint: the selectivity area doesn't really worry them. But on Trim it does, and on the Final lines... Some operations, say headlamps, it doesn't matter what car comes down. He either fits one type of headlamp or another. But if a van comes down - no headlining

> in the van. But if an estate car comes down in its place, then you have got to do more or less half an hour's work on that. So it throws the whole system out. We have to bring labour in and try and work it off... This is one of our continuing problems, and it harms labour relations more than anything else... The contented operator is generally the operator who performs his daily.. you say to him,'This is your job, you do 44 of these every hour for the next nine hours.'But if you are changing the models continually, then you change the men continually, and this causes a lot of friction between the foreman and the operator. (Superintendent, Trim Assembly)

This touches on an issue to which Beynon (1973, Ch.6) devoted considerable attention, namely control over the pace of work. Writing of the Halewood plant shortly before our own interviews were conducted, Beynon stressed the conflict between management and workers over this aspect of control. He examined the control over machine and line speeds that workers were able to establish in practice, and was able to go much deeper into the issue than we were. However, since our research looked at industrial relations from the supervisors' point of view, some points of comparison may be made.

Beynon was concerned with workers' resistance to control as a political struggle in its own right. He spoke of stewards attending courses on work study so that they could check the line speeds and model mixes, and of one steward winning the right to hold the key that locked the line on a particular speed so that any change had to be jointly decided between steward and supervisor.

Supervisors in our research mentioned none of this. Moreover, from their comments it appeared that line speeds

were changed frequently, and without there being joint control. Secondly, Beynon spoke only of speed-up, emphasising the tactic of gradually increasing line speeds during a shift so that workers failed to notice the increase in the pace of work. Again, the supervisors we interviewed never mentioned speed-up. What they wanted was flexibility, since if the line speed was increased they would (so they said) have to bring in additional labour. But equally as often, line speeds had to be dropped and excess labour on a particular section moved elsewhere.

Although supervisors sometimes helped with workers' requests - perhaps concerning a change of shift or station or a day off owing to some personal problem that had arisen - they would usually only do so on nights when the administration staff was not working. On the day shift, such matters were referred to the Personnel department. Supervisors' 'personal' contact with workers was mostly confined to administering rebukes, and the foremen especially disliked having to discipline workers. This was not surprising: unpleasant personal confrontations are things almost everyone tries to avoid, yet it is part of the supervisor's job to seek them out. Foremen who were naturally less assertive found the part that they had to play in industrial relations sometimes took them out of their depth.

> Q: Are there any parts of your job that you dislike doing?
> A: I suppose on some days I don't like anything. I dislike the problem with labour. I don't like to get really nasty, I dislike this. It's not my nature to be a nasty sort of person. I try to be fair and also courteous if I can. Being of a rather quiet disposition, it is more difficult for me. I'm not afraid of them. I don't like doing it... I don't like to resort to that. I have done it, but I don't like doing it. I would rather get them working with me if I can. I have had a small measure of success with this.

Many supervisors too regarded labour discipline as not really a part of their job - or at least as something that should not be necessary. There was 'the job' and there was 'the labour'.

> Actually from the engineering side of the job, there is nothing I dislike. From the point of view of the men I am working with, the men I have to control, there are a few of them whom I wouldn't give houseroom. They are just no good, and I am continuously having to chivvy and chase these men. I don't like to do this. When I say I don't like to do this, the vast majority of the men are interested in their job, they will have a go. And I would like to think that all my men were of the same nature. But they are not. The fact that I have to keep on chasing them irks me a bit. There is nothing more I would like to do than get them out of the plant altogether. (Foreman, Tool & Die Maintenance)

Disciplining workers was made much more of a trial because they were represented, and supervisors often complained of having to deal with tough stewards in grievance and disciplinary proceedings.

> Q: What aspect of your job do you dislike the most?
> A: Handling men. For instance, at the moment we've got one shop steward who is turning out bad workmanship. He seems to think that because he's a steward he's sort of untouchable. And that isn't so. We've had to go through the disciplinary procedure with him, and yesterday we had a rather heated discussion in here with the senior steward, the steward involved and our Personnel Officer, because they want us to suspend him for a day. I don't really like that sort of thing, but you've got to do it.
> (Superintendent, Quality Control PTA)

> Industrial relations is the tricky side of it. I don't mind doing it when the steward comes in with a genuine

> case that I can immediately get up and put right. But when he comes in and he's got a bitch on, and frankly he's looking for.. you consider he's looking for trouble, that can be.. he's not being constructive.
>
> (Superintendent, Materials Handling PTA)

In the context of disciplinary action, many supervisors strongly resented a perceived lack of support from higher management, Personnel and Industrial Relations. We only have the supervisors' version here. Since no cases were followed up in the Personnel or Industrial Relations departments, it is not possible to say whether supervisors were ever 'let down' in the manner often suggested. Of course, there was an agreed disciplinary procedure, and for absenteeism and lateness the case was straightforward as no witness was required. Workers who were absent or late received warnings, suspensions and if they persisted they could be sacked. Nevertheless, many of our respondents felt that if they presented Personnel with their bad time-keepers and other indisciplined workers, little would be done about it.

It seemed clear, then, from this examination of our respondents' attitudes to direct production and service workers, that mostly supervisors would have liked nothing more than to be able to treat workers as part of the machinery. Even when they reasoned that shop-floor conflict was the, perhaps inevitable, result of full employment and an interdependent production process, supervisors entertained the ideal of workers who worked at a constant speed and without needing attention. Supervisors constantly struggled to make this 'definition of the situation' a reality, for in a production process so constraining they could hardly afford to encourage expectations which permitted workers more than the most circumscribed freedom of action.

5.4 CONCLUSION

Much writing on supervision has been formulated in terms of the position of the supervisor, emphasising for example tensions in the occupational role of foremen and their problems of group leadership (e.g. Dunkerley, 1975). Although there has been a good deal of dissatisfaction with this approach, the major part of reasearch on supervision conducted recently has tended to reformulate it rather than develop alternatives (e.g. Fletcher, 1969; Hill, 1973). However, the literature does support alternatives, and attention was focussed on them in this chapter.

It was Marx who emphasised relations of co-operation within an intensive and extensive division of labour, including both manual and administrative workforces - a theme Thurley and Wirdenius echoed with their notion of a system of supervision. The Halewood supervisors' perceptions of their jobs helped us to describe such a system.

With many production sections extensive in area, shop floor foremen spent much of their time moving between the different places where problems were being encountered, and laying on services to deal with them. Indeed, although basically an accurate description, the 'trouble shooting' role Thurley and Wirdenius attributed to foremen is perhaps too grand a title for work that was sometimes little more than progress chasing. Superintendents and general foremen filled more of a managerial role, but even here the imperatives of production ruled work patterns.

Differences of task variability, time orientations and the degrees of salience accorded to the information respondents received from authoritative sources reflected

differentiation within a network of interdependent activities. Functional specialisation, rather than hierarchical grading, produced the sharpest differences in these variables. The frequency and uncertainty of contingent problems were unaffected by the rank of those in the hierarchy dealing with them. And while the higher levels came under less immediate time pressure, their time span of review was remarkably similar to that of their subordinates, and in production remained an immediate one. Functional specialism also accounted for most of the differences in response to signals from authoritative sources, differences which indicated the often unexpected pattern of personal intervention in technical control systems.

Thus, the work process we looked at was best understood as a system of supervisory labour - i.e. a set of work technologies and fragmented skills and controls necessary for conducting production - rather than a command hierarchy.

Marx too stressed the enforced co-ordination that accompanies relationships of co-operation. To the degree that the purchase and the use of labour are sharply distinguished, he suggested, the organisation has to provide controlling mechanisms effective in transforming purchased labour-power into productive labour. Management's ideological stance in relation to workers therefore attempts to objectify labour, to conflate the variable capital supplied by workers with the constant capital of equipment and raw materials. However, management itself constantly has to vary the production operation. Increased automation and work study exercises attempt to raise productivity, not to mention the necessity of disrupting established working patterns in order to start up daily production in an industry like motor assembly. Thus, there is a certain incompatibility between controls that attempt to influence productivity and attempts to stabilise effort once it is in motion.

The conflict engendered when people are put to work found expression in our respondents' attitudes towards the workers. Given that supervision, as conventionally defined, is the direct management of workers, respondents' concern to keep their contact with workers to the minimum was striking. How ironical that 'handling men' should be the aspect of the job that many of them regarded with most distaste! To them, if workers could not be treated as machine-appendages, it was because of recalcitrance. And on the whole these two images exhausted the repertoire of supervisors' attitudes towards the workers.

There was little in all this that resembled a positive approach to 'man management'. Our respondents mostly identified with a stereotypical management stance, namely that workers should behave as if they were a part of constant capital. Because supervisors sought constant effort from workers, the golden rule of industrial relations in Halewood was that well enough should be left alone.

NOTES

1. See also Thompson (1967).

2. Marx (1970), Chapter 15. Marglin (1976) likewise suggested that the need for supervision was the 'independent cause' of the development of the factory system, and that 'the factory system was not technically superior to the putting-out system at least not until technological change was channelled exclusively into this mould.' See also Gintis (1976).

3. See Gardner and Whyte (1945), Roethlisberger (1945) and

Wray (1949) for formulations of the original 'man in the middle' thesis of the Human Relations school. See also National Institute of Industrial Psychology (1951; 1957) for the personnel management approach; and Walker, Guest and Turner (1956) for a human relations study heavily stressing the role of foremen as group leaders.

4. In October, 1980 at Halewood, a crisis developed in production of the new Escort, the car on which Ford had lavished enormous development expenditure and placed great hope of much-needed sales in the small car market. The plant had achieved less than 70 per cent of the output scheduled for the launch. The Ford of Britain managing director laid the blame on the labour force, accusing workers of 'laying back in harness', and threatening to move future production to Germany. The plant shop stewards' convenor's reaction to this interestingly painted a picture of supervision similar to that adopted in our own analysis. When faced with the need to increase productivity in order to meet competition, the company had invested heavily in new equipment. £135m had been spent in Halewood over 18 months, and the plant had been 'virtually rebuilt'. But while management were quick to spot 'the human problem' as the chief cause of poor output, they apparently neglected to treat workers as the human element of production capital.

> The difficulty with advanced equipment (said the convenor) is that breakdowns have a massive impact. Management have acknowledged that the failure is everybody's fault, from the manager down to the janitor, and yet we find the hourly-paid labour force being blamed again. Equipment failures have been responsible for a large proportion of the losses. The management has been so preoccupied with getting the new equipment working properly that they haven't had time to talk to us about

> problems we have. Obviously if things don't get discussed, people get dissatisfied.
> (Roy Harry and Peter Hildrew, 'Ford threatens workers over Escort output,' The Guardian, 9 October 1980)

5. In a study of a supervisors' training scheme in a motor manufacturer, Woodward (1970: 239) also drew attention to the 'trouble shooter' role of foremen. She focussed on the relatively high level of uncertainty in their task introduced by suppliers who operated on a small batch basis and who therefore were unable to provide a reliable supply of bought-in parts. (Incidentally, while this 'trouble shooter' role also applied to Halewood's supervisors, the reason derived from shop floor contingencies rather than problems traceable to parts shortages. This latter was no great problem in Ford, and only Materials Handling supervisors mentioned it. Indeed, in the past suppliers of major components, such as Briggs Motor Bodies Ltd., had been taken over to ensure continuity of supply.)

6. These findings were confirmed by studies, conducted in the Halewood and Genk plants, using activity diaries and systematic observation methods (Mathew, 1976 and Fitzpatrick, 1970). Also Walker, Guest and Turner's (1956) study of motor industry foremen showed how job-related pressures tended to exclude informal social contact. They discovered that 'personal relations' occupied only 20 minutes, or 4 percent, of a foreman's day.

7. Perrow suggested that the most important consequence of technology for organisation structure is whether the tasks it generates are routine or uncertain. He identified two mutually exclusive variables as components of routineness/uncertainty: the extent to which search activity, prompted by contingent events, is analysable or unanalysable (that is, the extent

to which 'the stimulus is familiar and the individual has learned in the past what to do in the face of it', versus contingencies that demand 'experience, judgement, knack, wisdom, intuition'); and (ii) whether there were few or many of these contingent events or 'exceptions'. These two dimensions were the qualitative and quantitative sides of the contingent events occurring in a particular technology. Together they provide four categories of task or technology:

	Few exceptions	Many exceptions
Unanalysable search	Craft 2	3 Uncertainty
Analysable search	1 Routine	4 Risk

Taking the first quadrant in Perrow's schema, a technology with analysable problems and few exceptional events occuring presents managers with a routine task. (Perrow's example was a firm making heating components - a standardised task and an uncompetitive market necessitating few product changes.) The second quadrant includes technologies still with few exceptions, but those that do occur are difficult or impossible to analyse. The type of technology here is craft. (Perrow's example was the manufacture of fine glassware, a production process that depends almost entirely on the experience of highly skilled craftsmen.) Thirdly, the problems occurring may be both unanalysable and many in frequency. This creates extreme uncertainty for management. (The example here was a firm making nuclear fuel systems, where the production problems are highly complex and many product changes arising from a highly competitive market are likely.) Finally, the contingent events may be analysable but there may be many of them. In such a high risk technology,

problems crop up very frequently, but formal procedures will have been developed for dealing with them. The motor industry uses just such a technology.

8. The bank of 36 Likert items in the self-complete questionnaire were submitted to factor analysis, from which emerged attitude factors used in the research. The following items made up the dimensions of task variability. They are shown with the correlations within item-clusters.

FREQCON 1 You have to work on a day-to-day basis in this job

FREQCON 2 It is difficult to plan very far ahead because problems crop up all the time

FREQCON 3 Generally things go according to plan and not too many difficulties crop up

UNCERTY 1 I need to spend quite a bit of effort thinking up new ways of tackling problems

UNCERTY 2 Things happen all the time in this job that are unexpected and tricky to handle

RISK 1 Problems that I get in my job are mainly of a routine nature

RISK 2 Lots of things go wrong in this job but there are procedures for handling most of them

RISK 3 The problems that we get here are mainly routine but there are plenty of them

FREQUENCY OF CONTINGENCIES

	FREQCON 1	FREQCON 2
FREQCON 1		
FREQCON 2	.42	
FREQCON 3	-.26	-.27

UNCERTAINTY

	UNCERTY 1	UNCERTY 2
UNCERTY 1		
UNCERTY 2	.33	
FREQCON 3	-.29	-.31

RISK

	RISK 1	RISK 2
RISK 1		
RISK 2	.33	
RISK 3	.60	.28

9. For a similar account of these variables, see Woodward (1970: 241).

10. This was a simplified version of a measure used by Lawrence and Lorsch (1969: 250). See also Jaques (1956), who used the variable 'time span of review of performance' as a predictor of 'equitable' salary.

11. This example, incidentally, is directly at variance with assumptions writers of the Human Relations school made about supervisory behaviour. For instance, Walker, Guest and Turner (1956) emphasised close co-ordination in production. The motor industry foremen they studied apparently spent much time enquiring in subsequent sections how work was affecting them, and directly contacting 'the foreman and his men' in other areas. And for their 'average foreman', 'his instinct, unless he had a strong organizational conscience, was to rush to the sore spot and cure it himself.' (1956:67)

12. In the last few years there has been a reversal of growth of employment in the area, so that nowadays the North-East is once again notorious as an unemployment black-spot. In 1977, fifteen major firms closed down their Merseyside plants, among them British Leyland, English Electric, Lucas Aerospace and Birds Eye. Between them they laid off 11,000 workers, and brought the local rate of unemployment to 11.2 percent - nearly twice the national average for that year. (See A.C. Mayer, 'Merseyside on the Dole', Newsweek, May 1978, p.13.)

13. Although I did not examine the provisions of German and Belgian labour law, it is difficult to believe that reliance on a work permit was not the threat that Halewood's

supervisors believed European management to hold over their immigrant workers. For a variety of reasons, immigrant labour tends to be more docile than a stable proletariat. However, Managers in the Cologne and Genk plants insisted that immigrant workers had the same rights as local ones. In addition, German and Belgian plants were prevented by law from employing more than a small proportion of foreign workers. So a migrant labour force seems an unlikely reason for the relative success of Ford's European plants at that time.

14. The most common way in which workers could gain a few minutes' freedom from the line involved the practice of 'working up the line'. Workers would complete their operation at a faster rate than cars arrived at their station, thus having to leave station and work back up the line. This was similar to the familiar tactic in piece work of building up a reservoir of finished work to allow the individual some flexibility in his pace of work. The difference here was that assembly line technology made the practice much more difficult, and it was only possible at all in jobs involving the assembly of portable parts that could be carried up the line.

Chapter 6

THE PRODUCTION CONSENSUS

When organisations have powerful internal systems for manipulating their members and the labour process itself is an important site for reproducing relations of production, a consensus of beliefs becomes a critical expression of organisational control. The consensus helps in subordinating the system of supervisory labour to authoritative goals, at the same time as it assists supervisors in the control of other people and processes.

From the discussion of belief systems in Chapter 3, the major dimensions of their role in organisational control emerged as follows. Firstly, there was Weber's insistance that a bureaucracy's social order will be accepted as legitimate by its employees only to the extent that its rules are sustained at the level of belief - and it is permissible to extend this assertion generally to complex organisations. Beliefs are held by employees: they are adhered to despite clashes with other beliefs and with individual and collective interests. By virtue of such beliefs, senior personnel enjoy the status that confers legitimacy upon their directives, and in turn senior personnel actively reinforce the central system of beliefs. Beliefs also formulate the logic whereby people make sense of their work situation. They pervade internal exchanges, the organisation's relations with its markets, and finally rest on other beliefs accepted in wider society.

Secondly, the features of mass production industry to which Woodward alerted us - a fragmented system of managerial control, a relatively poorly specified managerial role structure and employment of a large manual work force - indicate the

necessity for correspondingly well articulated managerial beliefs. As importantly, the Marxist stress on hegemony showed that beliefs will not only be articulated around abstract notions of profitability and efficiency, but will embody the substance of 'ruling interests'. We should thus expect beliefs to reflect the formal system of managerial control.

An important piece of evidence indirectly supporting these points, namely the data on inter-departmental conflict, has already been presented in Chapter 2. It showed that while managers and supervisors were very actively engaged in applying and resisting pressure in their relations with other departments, there was no perceived breakdown of the formal structure of inter-departmental relationships. Indeed, informal pressures were an integral part of these relationships. Strongly implied in this was the existence of a consensus overriding lesser beliefs associated with particular goals and occupations.

In one sense all this is true by definition, since if a belief system is widely accepted it will automatically be found governing behaviour. However, the focus on beliefs provides an extremely useful basis for examining the legitimacy of managerial control. The objectives upon which the consensus of beliefs rested and their interrelations, the salience of objectives, the sources of their maintenance in the formal command chain, and finally the wider references that confirmed a sense of attachment to organisational beliefs in Halewood are the issues that will be discussed in the sections of this chapter.

6.1 DEPARTMENTAL GOALS

In the first instance, it is possible to identify some of the goals embraced by our respondents. These were examined

using the question shown at Appendix C:xiv. Responses were obtained for a list of eight items representing goals that might be attributed to each of the departmental groupings. There were production objectives of volume of output, quality and cost, service objectives of keeping the job to process and keeping the line moving, and engineering objectives of developing new products and processes. Respondents were asked to indicate the importance of each goal for their own job. Means of their responses on a seven-point scale of importance are shown below - Table 6.1

TABLE 6.1 Importance of Goals by Departmental Groupings*

	Production	Service	Engineering	All Respondents
1. Developing new products	3.2	4.5	3.2	3.6
2. Developing new processes	3.1	4.3	2.1	3.2
3. Keeping the job to process	1.7	2.5	2.1	2.0
4. Keeping the line moving	1.2	1.8	2.4	1.7
5. Maintaining the quality of workmanship	1.1	1.5	2.3	1.6
6. Keeping costs down	1.6	2.1	2.0	1.9
7. Fulfilling production schedules	1.2	1.9	3.2	2.0
8. Turning out a sound job	1.0	1.3	1.6	1.3
Mean	1.8	2.5	2.4	

* Scale scores run from 1 to 7, a low score indicating a high level of importance. In the original questionnaire, 1 corresponded to 'very important' and 7 to 'not important at all' (Appendix C, p.xiv).

Table 6.1 shows the mean scores on each item for all respondents and for the three departmental sectors. In general, it seemed that the production objectives of cost, quality and volume were regarded as being most important. In a production plant this should not be surprising, but it did not mean that particular groups of respondents - the service supervisors and engineers - regarded other objectives as less important. A breakdown of scores by individual department showed, for example, that quality control supervisors without exception regarded as highly important the goal of 'maintaining the quality of workmanship'; similarly, all the process engineers regarded 'keeping the job to process' as a highly important goal. The difference was that these goals were not very important for the other service supervisors and engineers respectively, hence the mean scores for the service and engineering sectors reflected lower importance ratings, particularly for non-production goals. It was in this sense that production goals could be said to be dominant. They constituted general objectives that united the production supervisors, and this was not true of other goals or of other departments.

Production supervisors were most positive about virtually all goals, even those for which they were not responsible. For example, 'keeping the job to process' was the work of process engineers, yet the production supervisors scored relatively high on this item. Similarly, production supervisors thought both development goals to be fairly important in their jobs, yet they had nothing whatever to do with developing new products or processes. Such responses, since they cannot mean that the production supervisors were directly involved in these goals, were probably caused by the high motivation of those in production in relation to the production goals themselves. In short, those responsible for production also felt responsible for other goals, an attitude which almost certainly stemmed from the fact that other goals were confined by production considerations.

In the present case, a factor analysis of goal items is of limited reliability since there are only eight of them. However, bearing this limitation in mind - by disregarding all but the most distinctive patterns - such an analysis can help to clarify the data in Table 6.1. When it was conducted, a factor analysis of the items designated three clear factors: (i) a production goal comprising the volume targets alone - items 4 and 7 from Table 6.1; (ii) a more general production goal concerned with keeping the job to process, with cost and quality targets - items 3, 5, 6 and 8; and (iii) a goal involving the development of new products and processes - items 1 and 2.[1] The distribution of the responses to original items was heavily skewed, since respondents tended to rate all goals as important. In order to improve upon this, responses in the 'highly important' category on each of the three goal factors were the only ones recorded. Table 6.2 below shows the proportion of respondents in each of the three departmental sectors regarding the particular goal factors as being highly important.

TABLE 6.2 Importance of Goals (Factors) by Departmental Groupings

	Percent of Respondents endorsing Goal Factor as Highly Important*		
	PRODUCTION VOLUME	GENERAL PRODUCTION	DEVELOPMENT
Production	99	89	49
Service	80	78	20
Engineering	47	73	54
	$Chi^2 = 28.12$ (8 d.f.) sig. = .00	$Chi^2 = 11.27$ (8 d.f.) sig. = .19	$Chi^2 = 15.08$ (6 d.f.) sig. = .02

* The average frequency of respondents endorsing either the first or second points on the seven-point scale of importance.

Firstly, it is interesting that the factor analysis did distinguish volume goals from the more general goals of production and from the development goals. Although the factor analysis was potentially unreliable, in all variations of the analysis of original items the factor PRODUCTION VOLUME* emerged as the one accounting for most variance.[2] This finding once again underlined the potency of volume production targets.

The pattern of responses across departmental groupings was in broad outline the expected one. The volume goal distinguished most clearly between the three groupings, with proportionately more in the production departments regarding this goal as important than in the service departments, and more in the service departments regarding it as important than in engineering.

The factor GENERAL PRODUCTION, which included objectives of cost quality and accurate process, was originally intended to include those goals that might be attributed to supervisors in the service departments. But this did not prove to be the case. Service supervisors did not regard this factor as significantly more important than did those in other departments, although all scores on this factor were similar and showed that all respondents thought these objectives to be about equal in importance. The three service functions embraced a much wider variety of tasks than was the case in the other two sectors. Maintenance and Materials Handling provided what was clearly a service, but Quality Control did not see its job to be wholly one of keeping production going. Thus, it was difficult to specify a set of objectives common to all service departments.

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* Throughout the thesis, a variable written in capital letters indicates an attitude factor formed of two or more separate attitude items. Where only one item is used to measure a variable, its name will appear in lower case.

The DEVELOPMENT factor proved to be a more appropriate goal for the engineers, but again not wholly so. Although more homogeneous than the services, engineering was still a varied function. Process engineering, work study and materials handling engineering all involved different specific goals. And while the engineers regarded the factor as being more important than did the other sectors, DEVELOPMENT was not their most important goal. Engineers regarded the GENERAL PRODUCTION objectives as being markedly more important. The Halewood engineers were not really development engineers, since new models were developed in Ford's R & D establishment at Dunton. However, a certain amount of their time was spent developing new layouts, processes and manning allocations, often for a planned model change. Thus, comparison of their responses to the DEVELOPMENT and GENERAL PRODUCTION factors shows that engineers recognised and accepted the greater importance placed by the company on day-to-day work of providing an engineering service to production compared with their development projects.

In sum, examination of the importance respondents attached to the particular range of goals gives the first indication that immediate output goals were indeed the basis of a distinct set of beliefs. Two major points emerged. Firstly, the volume goal of keeping the line moving and fulfilling schedules occupied the focal point of a system of service and production goals. It established production supervisors as bearers of the organisation's central objective. Secondly, while other groups of supervisors and staff did not view the work for which they were responsible as unimportant, they suspended belief in the importance of 'their own' goals to some extent. The resulting pattern reflected the integration of a highly differentiated control system. It allowed for the level of motivation necessary to perform essential service tasks, such as quality and process control, while still sustaining the importance of production volume.

6.2 PERCEPTIONS OF WORK PRESSURE

Perhaps the major shortcoming of the notion of goal, as it has conventionally been applied in the literature on organisations, lies in a tendency to reify the concept by focussing attention on the efficient achievement of goals, rather than on how goals themselves are reproduced. The question of why and how people accept goals, so that they become established organisational purposes, is at least as important as the technical one of goal achievement.[3]

In Halewood, the salience of production goals was sustained by a complex process of reinforcement and acceptance that can best be examined by first looking at the way the process was made manifest to supervisors, namely as work pressure.

The shop floor of a car plant at once strikes the observer as a very tough place in which to work, and whatever the worth of such an impression supervisors never failed to dwell on the subject of pressure in their jobs: pressure from output and budget targets, pressure from higher management, from the workers and from 'the line'. This was the outward manifestation of a tightly controlled production operation, and one to which supervisors were very much subject. The technical controls of production, the hierarchy of formal authority and the division of labour were the major structures enabling a high degree of pressure to be brought to bear on supervisors.

A quantitative assessment of pressure - that it was higher or lower than in other industries - would require a comparitive study, which is beyond our present scope. So the emphasis here will be on the sifferent sources of pressure.

(a) Inward- and Outward-oriented Objectives

A group of questions in the self-complete questionnaire assessed whether respondents looked to factory-wide, integrative objectives or towards the performance of their individual sections (Appendix C:xv), and it enabled us to examine pressure arising from the system of departmental production control. Respondents were asked to indicate the importance of various ways in which they were themselves evaluated - by the performance of their department or section, by their contribution to wider plant objectives and so on - and then to compare these with how they felt they should be evaluated on the same criteria. Comparison of the two sets of answers can be used to indicate the extent to which respondents were satisfied with their evaluation, and this analysis is shown below in Table 6.5. In addition, the two sets of answers, which were not very different, were averaged to show how respondents generally perceived the importance of different evaluations - Table 6.4. However, one feature of the response pattern invited immediate comment.

Of the six bases of evaluation tested in the question, one of them, namely the item PERFORMANCE OF MY OWN SECTION, was regarded as by far the most important. In fact, the pattern of responses was highly skewed favouring this item - Table 6.3. It reflected perhaps the most significant consequence of the division of labour for the control of supervisors' activity. Responsibility for performance in the job was conferred on each department and on each section within a department, so that consideration of other, wider or more diffuse goals played a very small part in supervisors' thinking. As a result, they became extremely 'inward-oriented'. A superintendent in the Press Shop explains that this was largely a consequence of departments being cost centres:

... everybody's only interested really in their own little

TABLE 6.3 Performance Evaluations - Own Section

	I am evaluated on the performance of my own section	I should be evaluated on the performance of my own section	All other choices
Most important 1	77	74	10
2	10	11	19
Least important 3	1	7	19
Not scored	14	10	61
	102	102	102

> department. It's wrong, I agree, and we in Press are no different from anybody else. If we can run a press line, we're not sufficiently interested in the problems we could create in assembly if the condition of the metal is perhaps wrong. Provided we can sell those panels to inspection we would run. Perhaps this is wrong thinking, but because our cost is completely separate and devoid of the other departments and we're only criticised for our own costs, if I lost an awful lot of money and yet I saved money on the assembly, it would be very difficult to put this over to my own particular manager, and he in turn to put it over to the Plant Manager.

With the heavily skewed distribution of scores that Table 6.3 reveals, it would normally be misleading to combine items to form broader attitude factors. However, this procedure may be adopted for purposes of comparison within the sample. Items were originally chosen to cluster in 'inward-oriented' evaluations based on a respondent's own colleagues or section, and 'outward-oriented' evaluations based on integration with other people and with other departments.[4] The pattern of

TABLE 6.4 Inward- and Outward-orientation Factors by Departmental Groupings

	INWARD ORIENTATION				OUTWARD ORIENTATION			
	1 Most imp. (%)	2 (%)	3 Least imp. (%)	Not Scored (%)	1 Most imp. (%)	2 (%)	3 Least imp. (%)	Not Scored (%)
Production	32	17	12	41	2	15	22	63
Service	29	19	10	42	3	16	19	61
Engineering	20	16	10	57	10	19	21	50
	$Chi^2 = 23.67$ (10 d.f.) sig. = .01				$Chi^2 = 11.02$ (8 d.f.) sig. = .20			

endorsements of these two factors, in Table 6.4 above, again shows the heavy emphasis on inward-oriented evaluations. The breakdown by departmental groupings shows, in addition, that engineers were less inward-oriented than respondents in either the production or service departments. However, the differences were not all that marked and the pattern, even for engineering, was for respondents to be more inward- than outward-oriented.

The service supervisors' responses might have been expected to be closer to those of the engineers as both are services to production. Interestingly, this was not the case. The answers from supervisors in the service and production departments were instead very similar. This probably reflected the nature of service supervisors' work: they overlooked manual workers and used a good deal of expensive equipment (although no raw materials), and so came under almost as much pressure as production to keep within cost targets; also service departments were situated on the shop floor and so were very much part of the immediate pressures of the production world, whereas

engineers occupied offices on a floor above the shop.

Turning to the other way of analysing these data, if the scores of corresponding items from the two sets of questions (the 'I am evaluated' and the 'I should be evaluated' items) are correlated, close agreement can be taken to indicate that respondents were satisfied with the stress laid on particular objectives used in evaluating their performance. By contrast, small agreement should indicate that respondents were not satisfied with how they were being evaluated.[5] Correlations between the two sets of scores are shown below in Table 6.5.

The table shows several interesting differences in response between people in the three departmental groupings. Firstly, the engineers were relatively dissatisfied with the fact that they were assessed on the basis of too great a concern for departmental loyalty ($r = -.05$). It seems likely that this reflected a professional autonomy they desired for themselves, and a desire not to be tied to sectional loyalties.

Secondly, there was a non-significant correlation ($r = .08$) for service supervisors' responses on the criterion 'working relationships with supervisors from other departments'. The service supervisors (more so than the engineers who provided expertise rather than service) had to work very closely with production. Except for the heads of these departments who were responsible for an entire plant, service supervisors were assigned to particular production areas, and spent most of their time in those areas. Keeping on amicable terms with production supervisors was an important part of their jobs, and their dissatisfaction may have arisen from feeling that their efforts in this regard were not being fully recognised.

Thirdly, the production supervisors themselves were

TABLE 6.5 Satisfaction with Performance Criteria by Departmental Grouping

	Correlations between Item-pairs					
	Relations with supervis. frm other depts.	Relations with supervis. from own dept.	Performance of own section	Performance of dept./ plant	Loyalty to dept.	Wider plant objectives
Production	.46	.57	.19	.67	.55	.45
Service	.08	.43	.69	.57	.68	.31
Engineering	.75	.67	.57	.28	-.05	.52
Full sample	.64	.55	.57	.56	.53	.44

relatively dissatisfied with the way in which they were judged on the major 'inward-looking' criterion, 'performance of my own section' ($r = .19$). Their complaint was that more stress was laid on this criterion than should be the case. Bearing in mind that these men also acknowledged that the 'inward-looking' criteria were on the whole most important (Table 6.4), this response seems to indicate that the pressure to confine objectives to individual performance was experienced as restrictive.

However, aside from these differences in response, the clearest feature of Table 6.5 is the high degree of correlation between most item-pairs. It appeared that respondents generally accepted the bases of their performance and felt that they were being evaluated as they should be. Thus, as well as being aware of the great pressures on performance, respondents seemed to grant the system of production control a considerable measure of legitimacy.

(b) Pressure from Departmental Objectives

Having shown that the system of production control gave rise to a strong 'inward-orientation' towards sectional goals, it remains to look at the impact of particular production objectives. In a sense, this follows directly from the description of production control in Chapter 4, for it was readily apparent in merely describing the controls of volume, cost and process that these were powerful constraints in supervisors' working lives. Production control was based on the departmental division of labour. Output, quality and cost were measured continually. And systems of monitoring - the monthly budget reviews, weekly overtime and methods improvement meetings, daily production meetings and the hourly volume count - measured departmental and sectional performance against the yardstick of established targets.

In examining sources of pressure, we start with production departments and the control of the volume schedule. Line speeds in the assembly areas were in excess of 50 cars per hour, with a capacity of 60 cars - as high as line speeds get in plants of Halewood's level of automation. When they were asked a general question about sources of pressure, supervisors frequently returned to the schedule as an ever-present constraint.

> Getting the cars out, meeting the schedules. The cars that are built I have to sell, and if I have got a float of 220 cars, outside they expect a little bit more, a bit plus to get rid of the backlog.

> Well, we have an hourly schedule... to keep the line moving, that is the main thing. Once again, it's quality against quantity.

> Pressure comes by being chased by people for panels. It's not meeting schedules at all, it's what they call a hot

job. It's when someone comes in in an emergency and says, 'Look, I've got to have five hundred of these otherwise such and such a line will stop'. That's a hot job and that's pressure.

The volume demanded was a source of pressure whether a department was achieving its schedule or not. A high schedule meant that volume and cost targets were being met, but capacity line speeds approaching 60 cars per hour put such a strain on machinery and workers that breakdowns occurred much more frequently and industrial relations could become tense. Both of these affected quality as well as volume. On the other hand, while a low schedule relieved such pressures, it gave rise to others when departments failed to reach production targets. In this case, superintendents would be subject to pressure from higher management, and in turn would pass the pressure on to subordinate supervisors.

The basic schedule for the whole plant was decided centrally at Warley, the Ford of Europe headquarters in Essex. It was revised on a monthly basis in response to market changes. But it usually remained the same over periods of many months, since the major criterion of volume was the capacity technically possible. However, in particular departments changes to the schedule were occurring continually. There was a variety of reasons for this. Worker absenteeism was probably the most common, but the schedule might also be changed in one area in response to a schedule change in another, or to circumstances prevailing outside the plant - perhaps a disruption in the supply of components or fluctuation in the quotas of finished cars going to salesrooms. Schedule changes occurred so often that many supervisors regarded them as a more or less routine part of the job, as this Press Shop superintendent explains:

Schedule changes don't worry me. Schedules are not pressure

they are part of my job... This is a schedule change. This should have come out as six-thirty this morning, but they've revised their sheet after doing a stock check and they find that they're short on these panels. But it's only just come out, it doesn't give me a lot of time. We allow eight hours, so from eleven o'clock nobody could criticise me if I didn't produce panels till this evening. But in actual fact, they want them at that particular time. So come what may, we've got to get these panels out at that time, which means pressurising supervision, pressurising labour, pressurising Inspection to get a sample, pressurising Tooling to work on the die...

None the less, changes in schedule could be very disruptive, the more so because these sources of uncertainty were not 'pushed out' to service and engineering departments in quite the same way as were breakdowns and changes in process. Supervisors had to implement schedule changes by co-ordinating the appropriate services, rather than simply calling them in. A change in volume or mix firstly meant a change in manning, and the particular supervisor and industrial engineer responsible would together work out new manning allocations. A schedule change also required different volumes of parts to be fed to production areas, a different speed of the moving line in assembly and different machine speeds in the body construction areas.

For the services, such changes were largely a matter of routine as there were established manning charts and feeding schedules that dealt with variations in production volume. But the brunt of pressure fell on the shop floor supervisors who had to implement schedule changes. Foremen in particular greatly resented the industrial relations difficulties arising

when workers resisted disruptions in the pace of work, and general foremen resented having to chase round all of the people - industrial engineers, production foremen, inspectors - whose efforts had to be co-ordinated to implement a schedule change.

> ... within the hour the schedule could be changed four times. The schedule has dropped down from, say, 44 to 42 to 40 and finished the day at 38 - all within the haour. Well, obviously this has its effect, and you get a lot of pressure down there where they operate. (Foreman, Trim Assembly)

> There is nothing more exasperating than when you come in and you go on and say, 'We will get 16 on the Capri, seven on the Corsair.' You go down on the floor, you go round, you set it and you think, 'That's it, lovely, finished.' And in about half an hour or even an hour later somebody gets on the 'phone and says, 'We're cutting the pull to fourteen.' And the bottom just falls out of it. You just go round again. You get that pressure that you have already gone through starting again. (General Foreman, Sub-assembly Capri)

The degree of pressure emanating from a capacity schedule varied. In departments like Body-in-White and Pre-delivery, which were small and performed a relatively straightforward task, the pressure was least. But generally the more labour intensive the technology - and this applied in the big assembly departments, Trim and Final - the greater were the pressures arising from a high and fluctuating volume target.

Costs were an overall constraint on both quality and volume. During the early 1970s in the plant, many departments were running in excess of the cost standards originally set by Warley, and this condition produced a constant pressure on some of the supervisors. On the other hand, costs tend to be an

influential control only when performance is in any case fairly close to that prescribed. In the situation then prevailing at Halewood, the original budgets had ceased to be realistic for many people.

> The company is happy with a ten per cent off-standard. At the moment we are about 300 per cent off, and it is a terrible state of affairs. The number of men authorised for a job may be 15, that is what you are paid for, but the required number to operate could well be 22, so before you start work you have lost seven men... I must say, at the moment no-one seems to care about costs, partly because they can't do anything about them.
>
> (Foreman, Sub-assembly Escort)

This situation serves to highlight the seeming paradox of cost control. Really, budgets can only detail the costs involved in an operation, yet they are used as standards of performance. Both these conflicting elements entered into supervisors' perceptions of costs. On the one hand, there was a sense in which jobs simply cost what they cost. Budgets were frequently rather shadowy standards, and departments could be incurring costs several times higher than their 'true' standard without coming under censure from top management. Excess labour was agreed by senior management acting on the industrial engineers' estimates of manning levels required for a given volume, and day-to-day operations for most purposes were controlled by that agreed cost standard.

> In the Press Shop here it's about 45 per cent off-standard this morning because the dies aren't working properly. So we have got to put extra men on the dies. We might be paid for six men on the job, and we've got to use eight, nine, ten ... but they will never refuse to allow me to put a man on the job unless they are prepared to stop that line and the presses.
>
> (Foreman, Press Shop)

> Costs are very, very poor. Not because the budget is difficult, but because of the excess men I have to employ over and above that allowed for and paid for. For instance: repair men. I have about thirty repair men, and this is about fifteen in excess of what is required. And of course my main problem is to get them out, do without them. But before I can do without them, I have got to get an improvement of the general quality. (Superintendent, Sub-assembly Escort)

As a result, an 'operating budget', itself quite permanent, came into existence alongside the official one. Plant management, which bore the operational responsibility to run the plant efficiently, was able to juggle costs. And in the short term at least, decisions were made on the basis of what jobs required, rather than rigid adherence to the Warley budget, which in any case was not always feasible.

> I left the cost meeting this morning, where we are within one man in a department of 263 people. We are within one man of the.. not the budget, you know; we have a sort of figure which is an agreed excess to the budget performance requirement... But allowing for that, we are within one man, and that is extremely good.
>
> (Superintendent, Quality Control MS&B)

On the other hand, this did not mean that if the cost standard could not be achieved plant management merely introduced an easier one. Costs were still used to put pressure on supervisors, and the pressure was perceived and acted upon.

> It is a very unfair system, actually. Because although you can alibi, you can say where the excess labour is due to these things, nevertheless it is still against your name as being a cost. After all, it still comes down to the total cost figure that you have to run off-standard for that week.
>
> (Superintendent, Final Assembly)

Furthermore, Warley was not ignorant of the situation, nor had it necessarily lost control if costs were in excess of its original budget.

In the long term, the necessity for a crack-down on costs to try to improve performance must obviously have arisen. For the 'true' standard - Warley's original - was not abandoned and additional costs were hardly ever written into the budget, no matter how long it had been necessary to incur them. However, the link between a specific managerial initiative and the effectiveness of cost control (i.e. the extent to which management intervention can be effective once efficiency has fallen well below the level desired) is a complicated matter, and not a subject on which this research can comment. Over the period of our research, the position on costs improved considerably in the plant, but to what extent this was the result of intervention by higher management or of a situation in which productivity, and therefore cost effectiveness, was in any case improving is difficult to say.

Finally, changes in process raised during production acted as another pressure on supervisors. Like the volume mix, these were mechanisms that enabled engineers to cope with problems arising out of production and supply, but at the same time these could be experienced by production supervisors as irritating disruptions in routine. Although major engineering changes were the responsibility of the engineering departments, occasionally production was left to fend for itself. Production supervisors complained that engineering changes would sometimes 'break out of nowhere', meaning that changes had been introduced without fully consulting shop floor foremen. Equally, engineers sometimes failed to implement in time a required change, and volume production commenced with the problem still in the system.

They changed the seal mouldings - the driprail that catches

> the water from the roof. It was too curved and it was catching the body work, so it had to be an engineering change... and of course, before they found this out it hit us - we had stacks of them. (Foreman, Pre-delivery)

Temporary deviations to process could also cause difficulties. These arose not so much in the assembly areas, where issue of a deviation was usually confined to parts bought-in or already in use, but in the Press Shop, where problems of process were particularly acute, deviations could set off unexpected difficulties.

> ... deviations raised mid-stream by people remote from the job, people who have no clear indication of what implementation on a flow production basis means. I think deviations are issued all too frequently and can cause considerable pressure to a superintendent, in that they can alter his performance against his budget forecast, they can alter his quality, they can cause labour relations problems and so forth.
>
> (Superintendent, Press Shop)

Of course, to view these problems from production's side of the fence is to risk exaggeration of their seriousness. Indeed, some of the quoted complaints have the flavour of 'industrial myth' - i.e. of events that have been recounted on many occasions to prove a particular point, and so have become dramatised. By contrast, engineers both played down the extent to which they were unable to contain these sources of uncertainty, and stressed that it was inevitable that some of the problems should leak through to production.

None the less, the pressure of cost-cutting and hasty implementation of major changes did mean that engineers were sometimes unable to cope wholly with a job for which they were officially responsible. Rather than locating the cause of these pressures only in the failure of engineering, some production

supervisors, like this Trim Assembly superintendent, showed an understanding of the way in which demands of high-volume production could spread uncertainty throughout a system formally designed to contain it.

> The sliding roof on the Capri.. this is a distinct failure I think on our part to engineer these things in. It's one that is pretty well to the forefront of my mind at the moment. In this plant we have never built a sliding roof job before of any kind. And when I say engineer in, I mean that we prove absolute feasibility off-line at a pilot plant before it is accepted as a production item... You have got to consider sequence of build - where this goes in and that goes in. And on a major model change, this would be done. But on some of the important changes, we don't engineer in. We suddenly start doing them, and it's catch as catch can in some cases. You know, a bit of a botch up.

Thus, in the phenomenon of work pressure it is possible to see a formal system of work control being enforced by authoritative agents, principally line management. But in addition, it was evident in respondents' comments about their work that they were preoccupied with sectional targets. An urgency particularly about production targets manifested itself as a charged atmosphere in the plant. The focus on sectional goals also produced an intense inward-orientation, with 'everybody only interested in their own little department'. Work pressure generated to this level indicated something more than the mere pursuit of official goals. Supervisors were aware that they were expected to accept pressure and respond to it - or as one respondent succinctly put it, pressure on him was sustained only because he performed the job expected of him by the company. Because targets were adhered to and accepted in this way, we may speak of their constituting the basis of an organisational belief system.

(c) Volume - the Overriding Control

The objectives of cost, quality and volume formed a sort of Holy Trinity - powerful, inseparable and pervasive. Volume could not be achieved without ensuring that quality was at least good enough to pass inspection; quality could be sustained only by having sufficient men to re-work substandard materials, which increased costs; and the budget could not be met unless a department produced the volume upon which budget allocations were based.

An incident occurred during the research which graphically illustrated the interlinking of operational pressures bearing on shop floor supervision. It involved a serious accident in which a foreman in the Press Shop had his arm crushed in one of the big panel presses. Such accidents were very rare - the presses had automatic guards which workers were supposed not to be able to reach beyond while the press was in operation - but the foreman had leaned across the guard, trying to clean the surface of the die while the press was working (often a particle of dirt on the die will spoil the stamping). The significant thing was that it was a foreman who sustained this terrible injury. Day-work meant that there was no incentive for workers to endanger themselves, as might be the case with a bonus payment system. But it was on supervisors that the pressure for shop floor efficiency fell.

When asked a question about the main source of pressure they were under, respondents' answers reflected the interdependence of controls. Supervisors could not think of any one objective without involving the other two. They would often stress one objective, only to shift as emphatically to another. And just as frequently, they would combine all three. This applied to service departments too, since (as we noted in

Chapter 4) their performance was linked to that of production departments.

> My sole aim in life really is four things each day, and that is to obtain a schedule, to obtain it within my cost forecast, to obtain a quality level that is acceptable to the consumer, and to maintain a particular disciplinary standard.
>
> If I was making 60 cars an hour and every one was acceptable to the customer, and the cost was within my forecast, and my shop was clean and tidy, then probably I would live to be a ripe old age.
>
> Well, of course, at the moment there's a tremendous amount of pressure being put on every supervisor in Halewood assembly on cost. As a quality control activity there's not much we can do, except to see that we are not using more labour than we have to. But since labour in every activity is related to the production output - and we'll assume that you have a production target of 60 cars per hour, which we have, and it isn't achieved, which it hasn't been - then you're going to run at a loss, you see. So it's just impossible for me to control it, so we get criticised for being off-standard.

However, there was also an important sense in which the volume of production acted as a 'master control', to which the controls of cost and quality were geared. This fact was reflected in Table 6.2 above, where we saw that responses about the importance of the volume goal were related most systematically with the pattern of respondents' attitudes to other goals.

Between the pursuit of quality and quantity there was an inherent conflict. If line speeds fell, quality was sometimes easier to achieve, but the prevailing attitude of senior

management was that quality standards had to be achieved at or near capacity volume. The plant was rarely able to sustain precisely this level of output, but it was nevertheless the standard by which performance was judged. Similarly, the schedule acted as a physical constraint on the control of labour costs, since assembly lines had to be fully manned. Individual workers could not simply be withdrawn from the integrated production system, even if it meant that they were under-utilised when the schedule dropped.

> The main source of pressure at the moment is on getting the schedule, which we haven't had since before this time last year... Allied to the schedule, of course, is the costs. But if you never get the schedule, you will never meet the cost anyway. (Foreman, Trim Assembly)

> We are always in debt in our department, we'll never be out of it. It's a department that if we were meeting schedule every day, we would be pretty good on costs. But then costs depend on our sales, if we are 50 jobs down at the end of the shift... (Foreman, Pre-delivery)

> To-day, I'm running this Paint Shop with a manning level of 60 per hour. Now, Body-in-White, I understand, have problems in the framing in the back-end of their shop, which is bringing about a lack of volume into my shop. So I'm running an uneconomical schedule, whether I like it or not... In the same way, the Trim depends on me. So the volume's paramount. You must have your volume. You must get your volume through every section, every hour. (Superintendent, Paint Shop)

Of course, the underlying imperative here was one of productivity, which meant higher volumes at lower costs. Superintendents were always trying to 'get labour out' of particular jobs. If costs were running in excess of budget,

there was much pressure to reduce manning levels, as well as to cut other costs. However, this effort had to be spread over a period of months, be based on work studies by industrial engineers and involve the union representatives. For everyday purposes, once the decision had been made to go for a certain volume, it committed departments to established manning and cost structures. This often left shop floor supervisors in the seemingly paradoxical position of being 'unproductive' merely because the plant had set its sights on unrealistic levels of productivity. This Body Plant foreman, for example, ponders his position, caught in the crossfire between conflicting yet interdependent control systems.

> The schedule is all-important. I think we have made mistakes in the past in going for schedule at all costs, inasmuch as you over-man yourself for a higher schedule than that which you are able to produce. In a run-off of 12, you man up for 15, so that if there is a shortage of stock, breakdown in another area or breakdown in your own area you cannot make this schedule. You have got this buffer of a higher manning for the job, and your costs go up... I suppose it is justified. These men who are working on it are not fools, they are quite clever. But somehow or other, we have stoppages, little breakdowns, and we only get that schedule instead of what we are manned for. So you are not only losing on costs, in many cases you don't hit schedule anyway.

Thus, the pursuit of volume was not without its contradictions. It did not prove possible simply to maximise productivity equally in all directions. Standards got in the way of each other, so that commitment to one had implications for each of the others.

6.3 PRESSURE FROM HIGHER MANAGEMENT

The separation of production, service and engineering departments represented the major form of the division of labour within the managerial-supervisory structure. Above the departments a definite break occurred in the structure of managerial authority, because managers at this level co-ordinated work far more heterogeneous than work carried out within the departments. However, in another sense all these positions formed links in the chain through which control passed from market forces to production. Similarly, while shop floor supervisors transmitted output demands to the workforce, they themselves were subject to demands from higher up - just as senior plant managers felt the authority of corporate management as well as the demands of the market. Neither junior managers nor foremen therefore could be called 'men in the middle', for there was no middle but a set of overlapping relationships embodying formal line authority. If production managers and supervisors were in the middle of any set of pressures - and they most certainly were - it was those generated within the system of formal controls.

The principal part of line management's responsibility could be read from the previous section, since production targets were reinforced in departments mainly through the departmental superintendent's links with higher management. In addition, though, it is possible to highlight particular tactics and institutional arrangements that contributed to senior management's control of production.

The tactics senior management made use of to manipulate their subordinates included that of keeping shop floor problems at arm's length, and making demands they well knew to be virtually impossible given the circumstances. The command chain provided a channel for conducting pressure, each section of

management and supervision resembling a booster to keep the signal at full strength.

> Management are fully aware of the problems involved, the cause of the particular problem that has come up, and they will insist on just sort of sitting back and saying, 'I want this done, I want that done', knowing full well that we haven't the facility to overcome the problem, nor probably the money to do it. But this is only caused by him in turn being pressurised by the top man, and so it goes down the line.
>
> (General Foreman, Trim Assembly)

> At the moment, we have the production manager who insists that we run the same schedule when I know for a fact that we can't... He has insisted this morning that we run at 54 an hour. I know that we can only run at 52 with the labour we have got. But with scraping here and there we are running at 54 an hour, but we are only going to get a worse quality job... They do everything here by pressure. By shouting and bawling and pressure. I do exactly the same. It rubs off. The foremen do the same.
>
> (Superintendent, Final Assembly)

'Passing the buck down the line' had a varying impact. On the whole, within the production sector work was sufficiently predictable for people not to be too bothered by this form of pressure. It was the 'name of the game', and people could see that they acted in precisely the same unreasonable manner to their own subordinates. The work of management and production supervision was sufficiently similar for it to be the same game all were playing. But engineers and other technical staff resented what they thought of as unqualified managers confronting them with demands backed by the power of their position. Indeed, wherever substantive operational problems were involved, the tactic of formalising communication, not wanting

to know the difficulties, was greatly resented, and people saw themselves being constrained and manipulated.

> I've sometimes been given a time of three hours, from the time I come in at half past two. 'Get your panels out by half past five, because there is a plane taking off from Speke airport at quarter to bloody six.' And the job hasn't even been set yet!... And I've only got three hours before the plane getts off. Managers don't rely on anybody at all, they rely on their own pieces of paper. There's nothing on a deviation form for die repairs to say what happens in the press when you put weight on a job. It didn't say that I had to go round and get a big tin of paste and spread it over the panels before they went into the dies to eliminate the bubble. It didn't say that on paper, it only had 'die repair'. And I've got automation getting their equipment in, and I've got to get inspection to OK the panel. All management care about is getting panels off the line. They don't care how you do it, or why you've done it. They just say to the production supervisor, 'We want parts, we want panels. Get them as soon as you can.' They don't want to know the reason why you maybe can't.
>
> (Foreman, Press Shop)

Oddly enough, what appeared at first sight to be just the reverse attitude also came from the technical staff. Sometimes technical people complained that managers became too deeply involved in operational problems. They interfered when there was no need for them to be on the shop floor at all. If some problem threatened - say, a relatively minor stoppage - and a manager happened to hear of it, he might set in motion the whole line hierarchy and several managers would arrive on the job. However, in such instances too we can see bureaucratic procedures coming into conflict with operational ones. For managers' motive (in the eyes of the technical specialist) was one of wanting to be covered. The result (again in the eyes of the specialist) was chaos - 'people creating impressions and getting nowhere'.

One of the major mechanisms through which senior management controlled supervision was meetings. Chief among these was the plant production meetings. These took place daily in each plant, at 10 a.m. when production was under way, and were chaired by the respective Plant Manager. Their composition varied, depending on what was on the agenda, but most of the production and service superintendents would be present and those of the engineering departments who were needed. In the meeting, the previous 24 hours' production was considered, and the decisions taken that were necessary to keep the lines running. Departments not meeting schedule were identified, quality and process problems, the stock situation and the costs of excess labour were discussed. As the major intervention in production by senior plant management, the production meeting was both a forum for heads of department to report progress and an effective means of bringing pressure to bear on those who were 'falling down'.

Another regular and important meeting was the weekly quality control meeting. In these sessions, a car selected at random from the line was taken apart in order to examine it for quality faults. Production managers and superintendents stood around the car as it was being demolished, and quality faults so revealed were assigned then and there. Naturally, in such circumstances the blame falling on whoever was responsible for a particular fault was very considerable. At the time the research was being conducted a recent innovation had changed this meeting into something akin to a bingo session, with a senior quality analyst (a man chosen for his flamboyant personality) on a raised stand, speaking into a microphone, identifying faults as the car was being broken up. It was a novel way of amplifying a means of control already provided by the meeting.

If a department could demonstrate that it was being run

efficiently, meetings could also serve to reassure a superintendent in his standing with senior management. For example, one superintendent who welcomed this form of pressure was in charge of Trim Manufacture, a relatively easy department to run and one well known for its success in meeting targets.

> ... they have about two vehicles there, different types, and they are extracted from the lines to highlight faults. Metal, paint, trim, everything you can mention. Then everybody meets there - the Plant Manager, Assistant (Plant) Manager, all levels of supervision - and they walk round the bodies, checking the faults. 'He's doing a bad job', 'He's doing a good job', whichever it might be. It's a very good thing. Keeps people on their toes... The appraisal count never varies. You've got to be there. Or if you're not there, they think you've lost interest in your job.

Apart from formal controls over supervisors, like meetings, the market for car sales and the fluctuations in demand to which it was subject could itself act as a control. Planners at Warley adjusted output schedules in response to demand, and this worked through the system. Thus, in the plant parameters of cost, quality and volume fluctuated as the market improved or worsened. And although the change was not rapid, normally within a period of two to three months a production supervisor would experience a change in schedule. The effects of such changes varied according to circumstances.

If the plant was running at or near full capacity, there was much wear and tear on people and equipment alike. Workers and supervisors were harrassed, and the machinery broke down more frequently causing the standards of quality to

suffer. But at such times management was also less concerned with the fine details of discipline and cost saving. On the other hand, with the plant running well below capacity a different set of problems arose. The motor industry depends upon continuous production and can be disrupted when stock has to be stored for too long or when unfinished cars have to be taken from the line. In addition, slack periods were utilised to attend to problems causing persistent quality faults or costs in excess of budget that would be allowed to pass in periods of high production for a buoyant market.

Although these disciplinary and production problems ultimately stemmed from changes in market demand, senior management interpreted the changes and translated them into production requirements. From supervisors' point of view, such changes in their routine held all the arbitrariness of bolts from Olympus. Ford's divisional structure meant that supervisors had no direct contact with the firm's markets; they knew nothing of customer requirements, sales levels and supply problems, save what they picked up informally. The command chain was the single most important link between market movements and the pressures for production inside the plant. Thus, senior management who controlled this link was the arbiter of some highly influential parameters in supervisors' jobs.

Finally, another interesting aspect of the organisational control of supervision derived from Halewood's position in Ford's multinational division of labour. Multinational corporations are frequently accused of using their structure of subsidiary plants to bolster corporate power. Manipulation of transfer prices, the siting of subsidiaries to exploit local conditions and threats of closures by shifting production between subsidiaries are well-documented measures.[6] At Halewood, corporate management made use of a tactic out of the same stable when they unfavourably compared the plant's production performance with those of Ford's

other plants in Europe. Particularly rife during the early 1970s when Halewood was supposedly performing poorly as compared with Genk and Cologne, the comparison between plant production figures carried an implied criticism of individual performance. It appeared that virtually every one of our respondents had been told that the Germans or Belgians performed his particular job more efficiently. The resentment of such comparisons was deepened by what was perceived to be a higher level of investment by Ford in the other European plants.

> Yes, we're constantly compared with what I'm told is a very efficient plant in Genk and Cologne. And we're compared with regard to cost and quality, which after a period you don't make any improvement and it tends to make you a bit disspirited to think that the criticism is unfair, that their set-up is entirely different. Their labour is different and their facilities, so I'm told by people that have been.
>
> (Superintendent, Press Shop)

> Well, I think that comparisons are odious anyway, because comparisons are usually made on surface values... But I think if there is a superintendent in Cologne or Genk or Saarlouis running the Trim Assembly... he ought to have the services I have, his labour should have the same remuneration as my labour, his labour should have the same holidays as my labour... I think that if we are Ford of Europe then we have got to be Ford of Europe, and we can't have these little pockets all over the place where different conditions exist. (Superintendent, Trim Assembly)

Antipathy towards other European managements even caused some supervisors to look more kindly on their own labour Any signs that Halewood's workers were indignant about German

intervention in the plant's affairs were welcomed, particularly by foremen.

> ... this is another point, we get it slung at us that Germany are doing better than us in this and that. Well, if you start telling the lad on the floor too many times about this, then he gets hot under the collar.
>
> (Foreman, Trim Assembly)

One of the Quality Control foremen interviewed was even able to condone sabotage, something which in any other circumstances would have evoked a very different reaction.

> I had some German engineers and managers come on the line ... and they were watching the assembly of windshields. The men who were doing it were deliberately smashing every one. One of the German engineers turned around to me and said, 'What's all this costing? You're smashing a lot of them.' I said, 'Yes, because you're here.' I explained to him that they don't think you're the big men that you think you are. And I was probably being a little bit brutal with the man, but that was the reason for my saying it. 'As soon as you move away from here you'll start saving the company money.'

Although such incidents have probably been exaggerated in the telling, the widespread resentment of being held up to standards allegedly achieved in the German and Belgian plants was real enough, and defined one limit of the legitimate status with which supervisors were willing to endorse senior management's demands. Supervisors put up with all manner of pressures, but the 'odious comparisons', it appeared, went beyond the pale.[7]

6.4 CONCLUSION

From the materials presented in this chapter, a picture emerges of a distinct set of beliefs, the substance of which was the official goals of production. More than merely an agreed goal, a powerful consensus was evident in the coherence of production objectives and the legitimacy generally conferred upon them. Production was the only set of goals uniting a sizeable group of supervisors, other goals making relatively specialised and therefore fragmented contributions to production. At another level, the set of beliefs we have called the production consensus formed the organisation's culture. Such a notion of culture, as Salaman (1979: 144) notes, 'if it doesn't characterise the organisation as a whole, nevertheless is distinctive of the organisation as a whole, is concerned with the organisation as a whole and is largely supportive of the organisation and its structure and activity.'

To close this chapter, it may be useful to examine some indications of the wider sources of legitimacy sustaining these beliefs.

Firstly, supervisors displayed a strong sense of organisational identity, and one whose underpinnings were authoritative goals. The goals provided a framework upon which supervisors constructed the meaning they discerned in work, and within which their working lives were experienced. Reading through interview transcripts and listening to the tapes confirms the impression that respondents' prime sense of reality, during the time they spent in the plant, derived from the immediate parameters of the job. When they spoke about the technicalities and demands of their jobs, respondents were describing their world of work.

The existence of a special vocabulary, expressing the significance attached to organisational goals and conveying a sense of their being shared objectives, was very evident, particularly among production supervisors. This group used an occupational jargon uniting it around the production consensus, with many catch-phrases to express the aims and typical problems encountered in achieving the volume goal. Production men spoke of 'hitting schedule', 'pulling volume' and 'running gaps'. They spoke of getting cars 'out of the gate' and 'off the end of the line', and the phrase 'the numbers game' was constantly in use. Other objectives to which they might aspire, the obvious ones being high quality and low cost, had not generated this kind of slang, although the company had tried to do something of the kind. Periodically, large notices would be hung in the plant exorting people to 'build quality in' and to 'get it right first time'. But there was no need to artificially stimulate the language of volume.

Several foremen complained bitterly of the lack of facilities afforded them - the fact that they worked from a desk by the line rather than an office meant that they had nowhere to put personal belongings, and had to 'interview' (i.e. discipline) workers in full view. Similarly, exclusion from meetings, some felt, distanced them from the management they were always being told they were part of. Management expected them to do a tough job for the company, but cheated them of the status they would have liked to be backed by.

But the Halewood supervisors also projected a strong sense of identification with both the company and the industry. Criticisms of either, particularly coming from outsiders, were unwelcome. The many critical opinions supervisors themselves expressed about different aspects of their jobs

in no way detracted from a very distinct feeling of pride in the company. Ford was 'in their blood', and few thought of a career in production supervision as anything less than a lifetime job. This was no unalloyed loyalty, but supervisors retained the notion that Ford was a successful competitor in one of the world's toughest industries. Mention may also be made here of the results of an attitude survey conducted at Halewood during the larger project of which the research this thesis draws on was a part. From a random, stratified sample of 60 supervisors there emerged the very strong conviction that Ford's products were the best in their class and that the company was commercially sound and well managed (Fincham, Mathew and Woodward, 1971:24).

Such attitudes were almost certainly reinforced by an important, if obvious set of external circumstances, namely that the industry, the company and its products are charismatic. Catered for on a massive scale by government investment in roads and other infrastructure, the motor industry, its suppliers and dependent industries provide far and away the largest single source of manufacturing employment. Indeed, experts have virtually equated the stability of capitalism in this century with expansion in the car industry.[8] Ford itself is the world's third largest company, it has pursued a venturesome international strategy and has a long record of success in the British market. The car too is perhaps the most sought after mass commodity in Western society. Given that Halewood's production managers and supervisors were denied any knowledge of the company's markets, receiving the information and inputs they used from company sources, the economic and symbolic significance of car production probably formed for them an important link between everyday activity and a wider sense of location in an environment.

Lastly, for the majority of supervisors there was little in the way of informal social activity or an alternative work ethic to compete with official goals. As already mentioned in

section 5.1a, in none of the interviews used here nor in the ones conducted in the larger research project was there any evidence of a network of relationships other than the one used in the pursuit of job-related objectives. Outside the plant, supervisors had little or no contact with each other and generally drew a strict line between work and social life. Furthermore, except for tooling and maintenance, few supervisors had a trade or profession. Production men particularly lacked experience of supervising in industries other than the motor industry. But the poor job mobility that this indicated appeared not to be the cause of much concern. Perhaps because supervisors owed their positions to Ford, there was little talk of moving outside the company even when promotion became blocked as it often did.

Thus reinforced by the absence of contending codes of behaviour, made manifest in a sense of identity with the company, in work patterns dominated by the exigencies of production and indeed in the very language used in the plant, beliefs formed an articulated and coherent set of personal goals that did not stray far outside the narrow perimeter of official ones.

NOTES

1. A factor analysis of the eight items in Table 6.1 gave a cut-off (eigenvalues greater than one) at three factors. Factor loadings are not reported, but the three factors, in order of the per cent of variance accounted for, were identified as PRODUCTION VOLUME, GENERAL PRODUCTION and DEVELOPMENT. Correlations within item clusters were as follows:

PRODUCTION VOLUME

	Item 4
Item 4	
Item 7	.71

GENERAL PRODUCTION				DEVELOPMENT	
	Item 3	Item 5	Item 6		Item 1
Item 3				Item 1	
Item 5	.51			Item 2	.83
Item 6	.47	.41			
Item 8	.31	.45	.45		

2. The factor analysis could be varied in several ways: by excluding particular items, by type of rotation and by varying the number of factors to be rotated. The clearest analysis resulted from using three factors with a varimax rotation. This accounted for 64 per cent of total variance. The PRODUCTION VOLUME factor then accounted for 33 per cent of the variance.

3. In this context, Perrow's analysis of organisational goals, one of the most influential in the literature, is particularly revealing. In his best known book on organisation theory, Perrow raised, if only briefly, the issue of the reproduction of goals. He recognised the importance of examining the legitimacy of goals, but asserted that sociology is not yet sufficiently advanced to take up the issue:

> For our purpose we shall use the concept of organizational goal as if there were no question concerning its legitimacy, even though we recognise that there are legitimate objections to doing so. Our present state of conceptual development, linguistic practices and ontology (knowing whether something exists or not) offers us no alternative. (1970:134)

Setting aside the reproduction of goals allowed Perrow to concentrate on a typology of goals and on the technical problems of achieving them - of coping with the conflict between groups with opposing goals, of pursuing goals in changing environments. Perrow summed up his approach:

> ... the problem is to ensure that technology, structure and goals are in harmony. This is what good management, or good leadership is all about. (1970:174)

More recently Perrow has adopted a quite different approach, rejecting entirely the idea that organisations have goals. The very notion of goals, Perrow suggests, implies a rational and sane society served by organisations. Instead, in 'a society of organisations' in which almost all social life is lived in the shadow of organisations,

> the idea of a central goal, or even three or four goals for an organization, is misleading. There are only usages; organizations living off other organizations; groups within the organization living off of it. (1979)

The position of the present research is that both these approaches miss the point. This is to focus on the degree to which goals become established and the mechanisms by which this occurs.

4. The attitude factors INWARD ORIENTATION and OUTWARD ORIENTATION were constructed from appropriate items, and scores on the factors were the means of scores on the items. The six items, from Appendix C, p. xv, forming the INWARD ORIENTATION factor were:

   - I am/should be evaluated on the effectiveness of my working relationships with supervisors from my own department
   - I am/should be evaluated on the performance of my own section
   - I am/should be evaluated on my loyalty to the department

   And the six items forming the OUTWARD ORIENTATION factor were:

   - I am/should be evaluated on the effectiveness of my working relationships with supervisors in other departments
   - I am/should be evaluated on the performance of the whole department
   - I am/should be evaluated on my contribution to wider plant objectives

One problem that complicated the application of this question was that what was an outward-oriented item to one respondent might appear inward-oriented to another. For example, to be oriented towards a department's performance was outward-looking for a foreman, but inward-looking for a department head. To account for this difficulty, some of the items were administered in a slightly different form to the three levels of the hierarchy. This was necessary for only two items. The version of the question shown in Appendix C, p. xv went to foremen and engineers. For general foremen and senior engineers the term 'my own section' was replaced by 'the sections under me'; and for superintendents and engineering supervisors the terms 'my own section' and 'the whole department' were replaced by 'my department' and 'meetings with other departments' respectively.

5. Correlations show agreement and disagreement between items, but not the direction of causality. In the present case, a high correlation might mean 'I am evaluated on this criterion and I should be' or it might mean 'I am not evaluated and I should not be'. Conversely, a low correlation might mean 'I am but I should not be' or 'I am not but I should be'. One way to overcome this problem would be to present the original frequencies of response. However, with 12 variables, each with a range of four scores and broken down by three functional groupings, this would give rise to a very complicated distribution. Instead, the procedure adopted was to report correlations, and to interpret from the original frequencies what a particular correlation meant, although original frequencies are not reported.

6. A particularly good illustration of this point was management's threat, during the launch of the new model Escort in October 1980, to transfer production of future models to the Saarlouis plant in Germany. The reaction from the Halewood

plant convenor to the threat also provides a good account of production pressures caused by high capacity output.

> Inability to produce the requisite number of jobs has put management under pressure and they have transferred that pressure down through the ranks to the shop floor, where people get kicked. It has been applied almost in desperation at times.
>
> (Roy Harry and Peter Hildrew, 'Ford threatens workers over Escort output', The Guardian, 9 October 1980)

7. Interestingly, some interviews conducted in Ford's plant at Genk revealed an even greater antipathy towards the Cologne management. In the Belgian plant, feelings ran much higher than at Halewood. In part this appeared to result from a more deep national dislike of Germans, but it also resulted from the degree of control Cologne had once exercised over Genk's operations. When the plant was first established in the early 1960s, it was as a subsidiary of Cologne and senior plant management was German. Many Belgian managers and supervisors felt that by absorbing Genk's production statistics into a combined operation, Cologne management enhanced the apparent performance of their plant and disguised the fact that Genk's performance was in fact superior. As a result, Belgian managers and supervisors welcomed the gradual development of Ford of Europe into a functional and legal entity. They felt that their independence became established once they were a full member of the European network, and that it had helped to ease out German management. Thus, it was ironical that staff at Halewood and Genk should have opposed attitudes towards involvement with Ford of Europe, based on identical hostile attitudes towards Cologne. (See Fincham, Alan Smith and Woodward, 1970:3-5)

8. See, e.g., Kronish (1978).

Chapter 7

LATERAL INTERACTION

Woodward, Lawrence and Lorsch and others reminded us that the central problem encountered within a fragmented managerial control structure is that of reconciling incompatible, plural criteria of action. The discussion of managerial beliefs in Chapter 6 neglected such conflict. There we wished to establish the basic fact that there was indeed a consensus of beliefs shared by Halewood's production management. Yet obviously this account was only partial. While service supervisors and engineers had not displaced production goals with goals more characteristic of their own occupations, they clearly embraced goals which were distinct from those within the production function and which in certain ways came into conflict with the dominant belief system. From the point of view of service supervisors and engineers, pressure transmitted to them from production was often regarded as a 'way of life', but equally could be resented if it was felt that production was making unreasonable demands - that they were having to 'hold production's hand' or 'do their jobs for them'.

Limits to the legitimate status of senior management were indicated in the hostility generated by inter-plant comparisons of performance. However, it was in the relationships between departments that conflict was in the main manifest. It was difficult for a supervisor to resist pressure transmitted down the hierarchy and applied by his immediate boss in his own department, but comparatively acceptable for him to resist pressure originating in other departments. This latter could legitimately be defined as an excessive demand. Consequently, in lateral relationships the central power structures of the organisation were constantly being invoked, and inducement and coercion were always near the surface.

Conflict and pressure were complex sets of predispositions and activities. They took the form of clashes between incompatible goals, informal resistance to formal control, competition between rival occupational work ethics, and the intensification of supervisors' own labour. A way to disentangle these strands is to examine the network of inter-departmental relationships, and it is on this analysis that the present chapter will focus.

Lateral organisational relationships have received perhaps their most comprehensive treatment in Sayles' study, Managerial Behaviour (Sayles, 1964). And while in one sense Halewood presented a very different range of processes from those set out in the model Sayles develops, the model remains appropriate in two ways: it is sufficiently analogous to Halewood for its categories to be applicable in the main; and its points of contrast with Halewood also highlight significant organisational processes. It will be useful to first look at the approach Sayles advances.

7.1 SAYLES' FRAMEWORK OF ANALYSIS

Sayles is essentially concerned to understand managerial behaviour through managers' perceptions of their work. He suggests that emphasis should be 'placed on lateral relationships and the need for greater recognition and definition of a variety of administrative interaction patterns' (1964:228). To this end, he develops a typology of managerial behaviour based on seven lateral relationships, namely trading, work-flow, service, advisory, auditing, stabilisation and innovation relationships.

Sayles divides the seven types into two basic sets, those involved in 'operating patterns' and those concerned with

'contingency patterns'. Operating patterns comprise the first three types - i.e. trading, work-flow and service - and provide for co-ordination of the central tasks of the organisation. The remaining four types - i.e. advisory, auditing stabilisation and innovation - are contingent on requirements (usually defined as staff activities) arising out of the basic operational relationships. Operating and contingency patterns are thus 'the basic administrative patterns of the manager' (1964:83).

Sayles' 'trading' relationship is perhaps the most elusive of the types, for it seems to refer to interaction characteristic of other types rather than being a type in itself. This way of conducting work relationships, Sayles suggests, is analogous to market-place behaviour. Trading is the 'process by which the terms of some future relationship are established' (1964:60). However, trading is both discretionary and dynamic, involving 'widely dispersed contacts throughout the organization as managers seek potential buyers and sellers' (1964:61) for whatever their particular section produces or needs, and moving through typical stages as relationships are set up, established and later extended.

Work-flow relationships involve the sequential, interdependent activities at the centre of the production system - and here it becomes clear that Sayles' model is developed with industrial organisations mainly in mind. Then service relationships form the links to functions essential in sustaining the flow of production. Halewood's system of production departments, with their serial division of labour, and the connexions with engineering and service departments provided the perfect example of these two basic types.

Sayles' fourth category, advisory relationships, resembles an ideal type since it is doubtful whether any group

confines its activities wholly to giving advice. Even in the case of personnel, probably the best example of an advisory function, there are decisions over which its jurisdiction is recognised. None the less, personnel departments frequently have poor status in a firm and exercise control over relatively unimportant matters. Certainly at Halewood when critical matters of discipline arose, Personnel were only expected to present the case to senior plant and industrial relations managers with whom power to take the decision lay.

Fifthly, the auditing function arises 'in numerous groups whose existence depends upon their ability to make appraisals, evaluations and checks that the manager himself has neither the time nor the skill to make' (1964:93). In our case, the clearest auditing relationship obtained between the Quality Control and production departments. Quality Control was both a service essential in the integrated production system, and an often unwelcome check on the performance of individual departments; and in the latter aspect lay its auditing function.

Sixthly, before certain activities can get under way a 'stabilising' group or individual is typically empowered to grant approval. This function serves to remove particular decisions from the hands of people whose motives might, if followed through, undermine organisational stability. 'There is ever present the fear that the manager. left to his own devices, might injure a delicate relationship' (1964:104). The production manager who sacks a recalcitrant worker and brings the whole plant out on strike is an example here. Invariably such decisions would fall to a personnel or industrial relations department, 'entering the process at a key point' and ensuring a 'balance of power' between 'competing interest groups'.[1]

Finally, innovation relationships obtain between operating

groups and specialist groups such as design and development teams. These relationships are not conducted regularly, but are activated when particular problems, usually complex ones arising out of production, crop up. Innovating groups hold themselves aloof from day-to-day operations. Their abilities represent 'the extreme of professionalisation', and a wise management involves them in minimum contact with the rest of the organisation to prevent their scarcity value from becoming dissipated.

Following this brief account of Sayles' analysis, three qualifications of its applicability to the Halewood data need to be entered. Firstly, Sayles bases his model on the major work relationships of a self-contained industrial organisation, while Halewood did not have divisions like research and development and sales. Moreover, our data were drawn from the plant's production function alone. Thus, not all the relationships Sayles identifies were represented. In particular, the advisory activities of Personnel and Industrial Relations were not included in our sample, and this category therefore will not be part of the analysis. However, even in the absence of major examples of a relationship, other examples were usually available. Such was the case with the innovation category. The kind of activities Sayles has in mind here are product development and original research. And although these were not pursued in Halewood, the plant engineers were responsible for certain development projects, an activity that did reflect the characteristics of innovation.

Secondly, Sayles tends to assume that each activity he identifies will be conducted by a special organisational unit and form a distinct lateral relationship. So, for example, stabilisation is pictured as the exclusive task of stabilising departments. However, such a precise division of labour does not always obtain. In Halewood it was possible to discern important

stabilising functions performed by several departments in the course of carrying out their major activity, although they were not stabilising groups as such. Sayles partially accounts for differentiated activity with his notion of a 'composite job' - i.e. an organisational unit that combines two or more separate tasks. But he does not take into account the more subtle case of a concrete activity that at once reflects several of his categories. Here the categories will resemble ideal types of action, rather than concrete activities. However, the difficulty need not be too great provided the categories are used flexibly.

Thirdly, use of Sayles' 'trading' category presents problems. According to this notion, managers themselves set up work relationships. Seeking out new ways of tackling problems, extending their networks of contacts, they actually create organisational structure, Sayles suggests, after the fashion of an organic internal market. Even work-flow and service relationships - the central structure of industrial organisations - are apparently created in this process of managerial initiative, although Sayles' evidence for assuming so is confined to examples of a trivial nature. In a more limited sense than this, the notion of terms of trade being fought over in established relationships, to decide the level of contribution departments are expected to make, does reflect the way in which pressure and resistance were counter-poised in Halewood. However, the sense in which Sayles meant trading to be used indicates rather a commitment to the conventional assumptions of the decisions approach to organisation theory, and we have already suggested (in Chapter 2) that these have little relevance in Halewood's tightly constrained production system. Thus, it is proposed to omit trading as a separate category.

Given these reservations, Sayles' remaining categories are still remarkably useful in analysing Halewood's inter-

departmental relationships. A particular merit is that Sayles focuses on typical problems that occur in different kinds of work relationships. Formal rules and an established division of labour, he suggests, give rise to typical operational problems with which people must come to terms if the relationships are not to break down. The social practices and orientations adopted in response to such problems also fall into typical patterns. Responses involve a complex adaptation, which may include attempts at straightforwardly resolving the problem, releasing tension by verbalising and dramatising the problem, and perhaps merely learning to live with it. In the discussion that follows, categories of relationship will be examined in terms of these typical patterns of problem and response.[2]

Before proceding to this discussion, however, it will be useful generally to describe the structure of Halewood's inter-departmental relationships - the frequency of contact between departments, their level of inter-dependence etc. It did not prove possible with quantified data to pick out all Sayles' categories, so this first account will be confined to the links between the production, service and engineering groups of departments. This simplifies Sayles' framework: work-flow and service relationships are prominent, but the 'contingency patterns' less so. However, the framework will be more fully utilised in the following section, where interview quotations are employed.

7.2 THE STRUCTURE OF INTER-DEPARTMENTAL RELATIONSHIPS

A group of eight questions, administered in the interviews of the sample survey, provided measures of five aspects of inter-departmental relationships. The aspects were: (a) frequency of

contact; (b) level of co-ordinateion; (c) inter-dependence; (d) conflict and bargaining; and (e) expected co-operation (Appendix B:vi-viii).

The questions were administered first by asking each respondent to identify the departments with which he had regular contact. The names of the departments were entered in the grid shown in the questionnaire (Appendix B:ix) and each of the eight questions was asked for each named department. This produced a considerable body of data - 110 respondents each describing an average of eight departments on eight separate dimensions gave nearly 7,000 separate ratings. In order to display them in a comprehensible fashion, inter-departmental relationships were aggregated into seven basic categories:

1. Production-production (serial). The basic serial division of labour of the production process, in which the work of departments earlier in series must be completed before a later department can complete its work.

2. Production-production (feedback). The relationship in which quality and process problems occurring in a particular production department were traced back up the line to the production department responsible.

3. Service-production. The relationships between the three service functions (Materials Handling, Maintenance and Quality Control) and the production departments.

4. Engineering-production. The engineering service provided for production by three engineering departments (Process Engineering, Industrial Engineering and Layout, Equipment and Materials Handling Engineering).

5. Service-engineering

6. Engineering-engineering

7. Service-service

Where a relationship obtained between two different categories of department (the three possibilities are service-production, engineering-production and service engineering) it

becomes both possible and necessary to distinguish two different views of the relationship. Thus, for example, supervisors in a production department may have quite different views of the service provided for them from that of the service supervisors themselves. This consideration complicates matters; so in the analysis below, partner departments' mean perceptions are shown in the tables before attention is drawn to any differences in perceptions. If none are mentioned, it can be assumed that the responses of people in linked departments were not significantly different.

(a) Frequency of Contact

A question was asked of each respondent concerning the frequency of his contact with supervisors in each of the departments he named (Appendix B:vi). Responses are shown below - Table 7.1.

TABLE 7.1 Frequency of Contact between Departmental Groupings

Inter-departmental Relationship	Mean Score	N*
Production-production (serial)	4.5	70
Production-production (feedback)	3.7	67
Service-production	5.7	257
Engineering-production	4.2	181
Service-engineering	3.5	173
Engineering-engineering	3.9	71
Service-service	4.5	55

Scale: 1. Hardly ever; 2. Once or twice a month; 3. Once a week; 4. Several times a week; 5. Daily; 6. Several times a day; 7. Continually throughout the day.

*In all tables in this chapter, 'N' refers to the number of each type of inter-departmental relationship reported by the whole sample.

The variations between scores are in keeping with our knowledge of the tasks involved. The service-production relationship, a major element of organisation structure, received the highest frequency rating at 'several times a day'. The serial work-flow relationship between production departments was also relatively highly rated - between 'several times a week' and 'daily' - although this may seem low given that the departments involved were mostly adjacent to one another, and that serial relationships formed the basis of the production system. However, there is no reason to expect an assembly line technology to be highly dependent on managerial intervention; while these relationships were critical, they did not necessitate much interaction.

The feedback relationships between production departments, also a form of intervention in the work-flow, occurred much less frequently than direct, serial relationships between production departments. Feedback of complaints via the personal intervention of production supervisors, we noted in Chapter 4, was rare. Such complaints were mostly dealt with by Quality Control acting as intermediary, or were channelled into senior management.

Reciprocal relationships between service and engineering departments were of an intermediate frequency relative to others in Table 7.1. Service departments were in 'daily' contact with each other. In many cases, these supervisors were mobile and naturally came into contact on the shop floor. In addition, they had certain jobs to perform for one another: Maintenance looked after the vehicles used by Materials Handling, and Quality Control checked the materials fed to the stores and from the stores to the lines. Engineering departments were in touch with each other less frequently, which underscored their place in Sayles' innovation category. Finally, the least frequent contact was that between service and engineering. This was confined to isolated engineering tasks required by service departments:

Layout Engineering designed pallets that Materials Handling used to transport 'knocked down' parts to other Ford locations, and Industrial Engineering developed the manning allocations for inspection lines.

The only significant difference between ratings by partner departments of joint relationships obtained between production and engineering. Engineers regarded their contact with production to be on a 'daily' basis (mean score 5.1), while production supervisors thought the contact was only 'once a week' (mean 3.2). This discrepancy in perceptions can be explained quite simply. One engineer was usually responsible for a production department containing perhaps 20 or 30 foremen and general foremen, and if each of them called him 'once a week' it would amount to a 'daily' contact from the engineer's point of view.

(b) Level of Co-ordination

Respondents were asked to describe the contact they had with supervisors from other departments in terms of a seven-point scale that ranged from a standard or routine procedure governing the relationship, to discussions of how to implement plans and procedures, to the formation of new plans and processes. These three levels of co-ordination were referred to as 'standardisation', 'plan' and 'mutual adjustment' (Appendix B:vii). Means of response scores are shown below in Table 7.2.

The data complement those above on frequency of contact. Most inter-departmental relationships produced a level of co-ordination mid-way between 'standardisation' and 'plan'. This result was in keeping with a picture of production as an essentially predictable system, although one in which supervisors

TABLE 7.2 Level of Co-ordination between Departmental Groupings

Inter-departmental Relationship	Mean Score	N
Production-production (serial)	3.8	70
Production-production (feedback)	4.4	67
Service-production	4.4	259
Engineering-production	5.2	180
Service-engineering	4.8	173
Engineering-engineering	6.0	72
Service-engineering	4.0	55

Scale: 1. No contact; 3. Standardisation - standard procedure for the interrelation; 5. Plan - discussion of how best to implement plans, schedules etc.; 7. Mutual adjustment - high level of dialogue, forming plans, new processes etc.

intervened when formal relationships did not run smoothly. From the supervisors' point of view, there often seemed to be more problems than procedure, but this did not prevent their recognising the essentially formally structured nature of work relationships.

Links involving the engineering departments gave rise to the highest levels of co-ordination - an appropriate response given the nature of engineers' tasks. The highest level of co-ordination recorded obtained between the engineering departments themselves. On the relatively infrequent occasions they met, it was to discuss complex problems such as major engineering changes, new sections of the production system to be installed, persistent quality faults etc.

There were no marked differences in the perception of relationships between partner departments, although there was a tendency for production to play down the level of co-ordination

- i.e. to regard it as more standardised - between themselves and the engineering and service departments. Production supervisors' mean scores of their levels of co-ordination with engineering and services were 4.2 and 4.8 respectively, whereas the engineers and service supervisors recorded scores of 4.7 and 5.5 respectively. The difference probably arose because, in these relationships, production supervisors were ridding themselves of problems (breakdowns, process faults etc.), but at the same time creating problems for services and engineers. Thus, the latter would be more likely to regard them as problems calling for a high degree of attention and care. However, these differences were not large and so support the point, made in Chapter 5, that production supervisors were unable to dispose completely of the uncertainty arising out of their work.

(c) Interdependence

Two questions were used to assess the level of interdependence between departments: one asked how much a respondent's job would be affected if another department did not do its job properly, and the second asked how much that department would be affected if the respondent did not do his job properly (Appendix B:vi-vii). Unlike the two previous questions, mean scores are not appropriate here. The dependence of A upon B may be quite different from that of B upon A. Thus, in Table 7.3 below a distinction has been drawn between respondents from partner departments.

Service and engineering links with production were perceived by both sides in terms of production's high dependence on services and engineers, but with far less dependence in the reverse direction. However, there were some interesting differences in perception. Production supervisors regarded services

TABLE 7.3 Interdependence between Departmental Groupings

Inter-departmental Relationship	Our dependence on them	N	Their dependence on us	N
Production-production (serial)	2.8	68	3.0	70
Production-production (f'back)	2.6	67	3.8	66
Serv.-prod. (service's view)	2.3	111	1.7	113
Serv.-prod. (prod's view)	1.7	144	3.1	142
Eng.-prod. (eng's view)	2.3	68	1.7	68
Eng.-prod. (prod's view)	2.5	112	3.4	110
Serv.-eng. (service's view)	2.7	88	3.2	87
Serv.-eng. (eng's view)	3.0	83	3.1	75
Engineering-engineering	2.5	72	2.7	71
Service-service	2.5	54	3.1	52

Scale: 1. A great deal; 2. Quite a lot; 3. Some 4. Not much; 5. Hardly any.

as markedly less dependent on them (production) than did the service supervisors regard their own dependence on production (mean scores of 3.1 versus 2.3 respectively). In other words, service supervisors said that they had 'quite a lot' of dependence on production, while production supervisors thought services had only 'some' dependence on them. Similarly, production supervisors felt that engineers were only moderately dependent on them, but engineers felt themselves to be more dependent on production (mean scores of 3.4 versus 2.3 respectively). These differences can probably be explained by the existence of a belief, which other evidence suggests was prominent throughout the factory, that ultimately everyone's livelihood depended upon production.

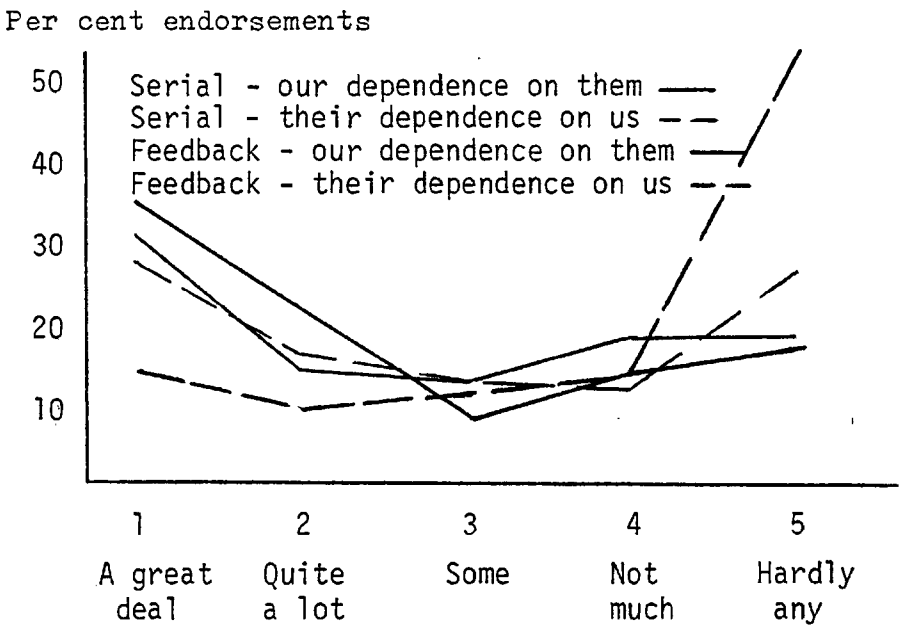
In addition, production supervisors did not regard their dependence on engineers as very high (mean 2.5), although they provided an essential service to production. This discrepancy

can be explained, as above, by the fact that although his whole department would call on its engineer frequently, an individual production supervisor needed engineering assistance much less often.

Relationships between the service and engineering departments again proved to be of moderate strength, with respondents reporting generally a little more than 'some' dependence on each other. Service supervisors acknowledged that they were more dependent on engineers than vice-versa, and although the difference was slight (mean scores of 2.7 and 3.2 respectively), it reflected that these relationships mostly consisted of engineering jobs that the services needed, such as pallet design and job timings.

The serial and feedback links between production departments were only accorded moderate scores for interdependence, which is unexpected in the case of serial relationships as these formed the basic flow of work. A department should recognise its dependence on one earlier in the line even if there was little direct contact between them. However, the mean scores of Table 7.3 masked interesting U-shaped distributions of response. These are shown graphically in Figure 7.1 below.

FIGURE 7.1 Interdependence in the Production-production Relationship



Given the structure of serial and feedback relationships, where departments further on in the series are highly dependent on earlier departments but the latter are not dependent on the former, we would expect some responses to indicate high dependence and others to indicate negligible dependence. The above distribution, with responses bunched at either end of the scale, did indeed reflect such a structure.

(d) Conflict and Bargaining

Respondents were asked questions for each named department concerning the amount of conflict and bargaining that characterised the relationships (Appendix B:vi and vii). For conflict, they were asked whether relationships could be characterised by 'unity', 'average relations' or whether there was a 'breakdown'. For bargaining, they were asked how much they had to bargain in order to obtain the co-operation they required. Means of responses are shown below in Table 7.4.

Conflict and bargaining are terms that require further definition, especially the latter which was taken from its usual context in industrial relations. Conflict, already discussed in Chapter 2, proved to be quite well specified by the above response categories. But the idea of bargaining was not so familiar to respondents. It was explained to them in terms of a process of give and take, a trade-off between two parties who each had something the other wanted.

The clearest feature of Table 7.4 is that neither conflict nor bargaining were regarded as typical. Already shown in aggregate form in Chapter 2 - Table 2.2, the scores on conflict and bargaining variables reveal that interdepartmental relationships were mostly regarded as 'a bit better than

TABLE 7.4 Conflict and Bargaining between Departmental Groupings

Inter-departmental Relationship	Mean Scores		
	Conflict	Bargaining	N
Production-production (serial)	3.4	3.8	70
Production-production (feedback)	3.5	3.7	68
Service-production	3.0	3.4	257
Engineering-production	3.5	3.4	181
Service-engineering	3.1	3.5	173
Engineering-engineering	2.7	3.8	72
Service-service	3.4	3.6	55

Scales: Conflict

1. Sound. Full unity of effort is achieved
2. Almost full unity
3. A bit better than average relations
4. Average relations. Sound enough to get by even though there are some problems of achieving joint effort
5. A bit of a breakdown in relations
6. Relations are bad
7. Could not be worse. Bad relations. Serious problems exist that are not being solved

Bargaining

1. I have to bargain for everything I get
2. Generally speaking you have to bargain
3. A certain amount of bargaining goes on
4. I don't have to do much bargaining
5. I don't have to bargain at all

average' and were thought to involve 'a certain amount of bargaining but not much'. Indeed, respondents often said that 'bargaining' was not an appropriate term to describe their work relationships. Problems essentially arose over the pressure for levels of performance at the very limits of what was feasible.

At a pinch, these problems could be thought of as an effort bargain or transaction over a rate of exchange between respective contributions to a relationship. But the true sense of continually redefining what was expected in a relationship, implied by a concept like bargaining, struck a false note with many of our respondents. Inter-departmental relationships were not symmetrical exchanges of co-operation and information; they were mostly the work-flow and service links characteristic of an established production system.

Table 7.4 shows some variation in scores, although they were small. The mean scores for bargaining were mostly alike, but there were some differences in the levels of conflict reported. Feedback relationships between the production departments gave rise to a relatively high level of conflict (mean score 3.5). This was not unexpected, as in these cases production supervisors exposed process and quality faults originating in departments prior in the production sequence and demanded that they be rectified. Moreover, in situations normally mediated by Quality Control or senior management, production intervened directly.

Secondly, the relatively high level of conflict between production and engineering (mean 3.5) and the lower level of conflict between the engineering departments themselves (2.7) once more underlined a clash between the aspirations of engineers and demands from the production system. Engineers interpreted this question in terms of the problems they had in 'getting a job in', as they put it. All of the engineering departments (and this applied to only one service department, namely Maintenance) had the problem that much of their work interfered with production. But there are great pressures in a car plant to keep work flowing; certainly the lines must not stop. Engineers had the difficult job of trying to pursuade production supervisors to allow the

flow of work to be interrupted sufficiently for them (the engineers) to complete their jobs. Of course, production supervisors wanted a first class job and the minimum of interruption.

(e) Expected Co-operation

Expectations of co-operation from others were used as a further indicator of inter-departmental conflict. Two questions were asked: how strongly did respondents feel that others should provide co-operation; and how strongly did each respondent feel that he should provide co-operation (Appendix B:viii). The data obtained once again required a distinction to be drawn between which of the partner departments was reporting, and these are shown below in Table 7.5.

This response pattern was broadly in tune with the previous one on conflict. With means converging almost exactly on expectations that co-operation would be both provided and proffered, it appeared that there was no general expectation of conflict.

In both the serial and feedback relationships production supervisors felt that they should give each other co-operation, but in demanding co-operation mean scores were a little higher, indicating a certain willingness to recognise others' problems. (Thus, these responses, it may be noted, did not register the somewhat higher level of conflict attributed to the feedback work-flow relationships.)

A similar pattern prevailed among the service and engineering departments. Engineers were most co-operative in their relationships with each other. And in the engineering-

TABLE 7.5 Expected Co-operation between Departmental Groupings

Inter-departmental Relationship	Mean Scores: Co-operation we should receive	N	Co-operation we should provide	N
Production-production (serial)	3.7	67	3.3	69
Production-production (feedback)	3.7	67	3.2	66
Service-production (service's view)	3.6	110	2.4	113
Service-production (production's view)	2.0	145	3.4	142
Engineering-production (engineering's view)	3.5	68	2.7	68
Engineering-production (production's view)	2.1	112	3.6	109
Service-engineering (service's view)	2.8	88	3.4	88
Service-engineering (engineering's view)	3.5	83	3.6	73
Engineering-engineering	3.1	72	3.3	71
Service-service	2.8	55	3.3	51
Mean	3.1		3.2	

Scales: Co-operation received

1. Their only function is to give us this co-operation
2. Even though they have their own problems our needs should come first
3. They should give us this co-operation
4. Even though I want their co-operation I recognise that they have their own problems
5. Their own problems should come before mine
6. We should not expect them to give us this help

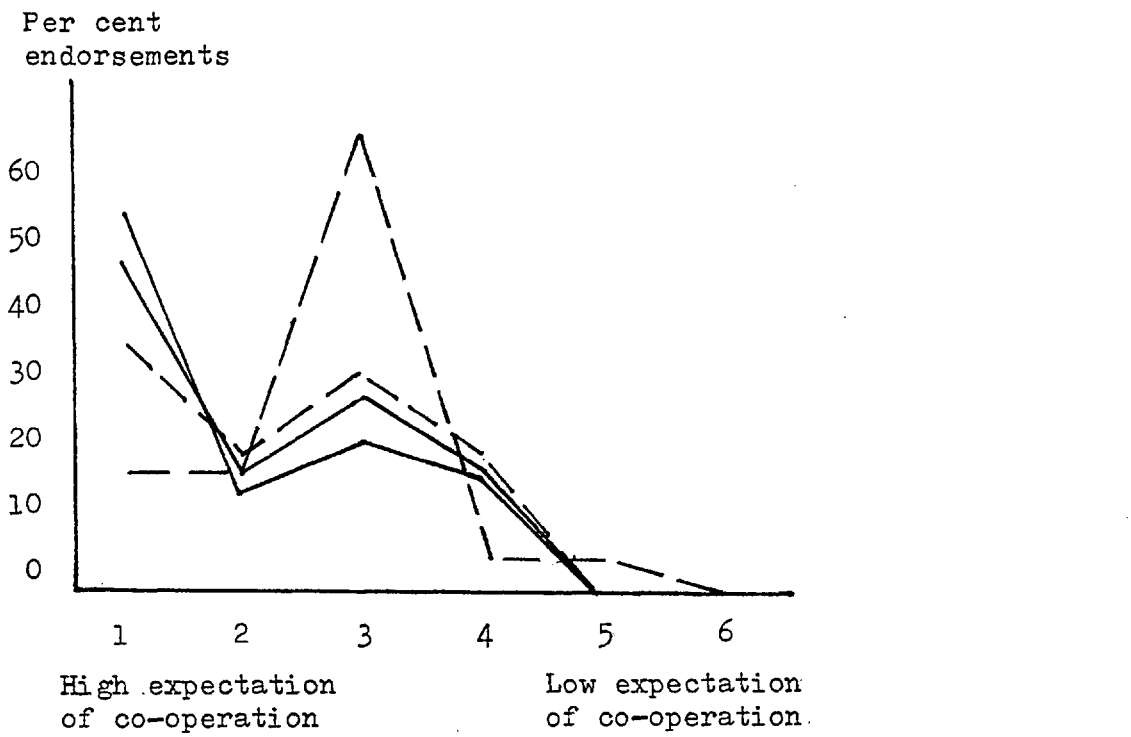
Co-operation provided

1. Our only function is to give this co-operation
2. Even though we have our own problems their needs should come first
3. We should give them this co-operation
4. Even though we should give them this co-operation they must recognise that we have our own problems
5. Our own problems come before theirs
6. They should not expect us to give them this help

service relationship, it was engineers who were most co-operative, tending to recognise service supervisors' problems while service supervisors themselves more directly demanded co-operation - perhaps because it was mainly the engineers who assisted the service departments, rather than the other way around.

In only one case was a fair degree of conflict expected, and again this obtained between engineers and the production supervisors. The conflict can best be shown by comparing the distributions of engineering-production scores (rather than mean scores as in Table 7.5) with distributions of the service-production relationship.

FIGURE 7.2 Expected Co-operation between Engineering-production and Service-production



From Figure 7.2, it can be seen that three of the four curves were similar while the single curve indicating the co-operation engineers expected to provide for production differed. Production had a high expectation of receiving a service, and the service departments had a high expectation of giving one - not quite matching production's insistance, but as many as 34 per cent of service supervisors felt that giving production a service was their 'only function in the plant'. Production were equally insistant on being given co-operation by engineers, but the engineers were inclined to say no more than that they should provide such co-operation. As with conflict in the previous section, there was no great clash of expectations, but a resistance on the part of engineers to seeing the service to production as their 'only function' was evident.

7.3 PROBLEMS AND PRESSURE

Having discussed in outline Sayles' analysis of lateral managerial interaction and examined the structure of inter-departmental relationships in Halewood, it remains to look at particular relationships in more detail. Sayles' focus on the range of problems encountered in inter-departmental relationships proved to be a good basis for systematically examining lateral interaction

(a) Work-flow Relationships

The sequence of operations in car production - the 'build' - is of paramount importance. Mass assembly of so complex a product is dependent in the first place upon engineering design, so that

workers find it easy to fit parts together and the sequence of assembly is relatively efficient. All the problems of producing at high volume, achieving consistent quality and low cost return to the basic issue of work-flow design. Indeed, models are often known for having a particularly good or bad build.

The critical problem in work-flow, Sayles suggests, lies in the co-ordination of activities. Problems in this category occurred at Halewood particularly in the work-flow link distinguished as a feedback relationship. In a sense, these contacts only became necessary when serial work-flow encountered problems. Feedback work-flow exchanges occurred most frequently among supervisors on the boundaries of their departments. For instance, supervisors in the first sections of body construction were frequently in contact with their counterparts in the Press Shop to complain about minor metal defects. And in the main assembly departments, Trim and Final, many problems arose from faulty alignments and holes incorrectly drilled in body construction. They meant that items of trim and other assemblies could not be built into the car, so it became necessary to get the Body Plant to rectify the faults.

> Whatever job it is we are complaining about we want it stopping at the point it is being built, so that it will eventually clear up. In cases with the Trim, we want whatever we have got in the system rectified there and then. If it is with the Body-in-White, you can't do it actually in the system. Body-in-White is probably four days away in build, so whatever is in the system you have got four days of before you clear it... The only two departments that effect us directly are Trim and Body-in-White. We suffer constantly with metal defects and they are repetitive metal defects. We are constantly in touch with them. I would say we contact the metal at least twice a day; I would say at least four times a day we contact the Trim.
>
> (Superintendent, Final Assembly)

> In our own section, Trim and Final, we invariably telephone. If we are getting a bad run of bent brackets, untapped holes or clinch nuts missing from Body-in-White, then we usually contact the general foreman to run across, because the foreman couldn't leave the line long enough. If it's desperate and something has to be done within half an hour, then you get the general foreman to go across. (Foreman, Trim Assembly)

One might expect work-flow problems to be particularly acute when a new model or face-lift to an existing model was being introduced into full volume production. The period of run-up to a new model involved much uncertainty being injected into what was basically a quite predictable production system. New sections of line had to be installed, new parts bought in and existing ones phased out, the Press Shop was re-tooled; and when new model cars were sent down the line for the first time, before building volume to full capacity, all the multifarious problems of production were supposed to be ironed out. One might think that this would result in increased work pressure, but in fact the reverse occurred. Production supervisors reported less pressure, and even the engineers who had to cope with these problems said that the work was normally well under control.

The reason was two-fold. Firstly, new models and face-lifts were not developed within production plants. They were designed and developed off-line in a pilot plant, and introduced by special teams of central staff and plant engineers. Thus a new model was handed over, so to say, as a working arrangement to production supervision. Secondly, when a new model was being introduced line speeds in the plant were decreased to 20 or 30 cars per hour to allow remaining quality checks, adjustments to process and engineering changes to be carried out on-line. Thus, this unexpected effect of new models

again emphasised line speeds as the major cause of work pressure.

Once a model entered volume production, there remained elements of uncertainty generated when such a complex system was running at high capacity. In Tables 7.1 and 7.2 above, both the frequency and complexity of interaction between production departments indicated the need for a moderate level of short, usually repetitive exchanges to clear up specific problems of workflow. Despite the integration of activities not always being smooth, however, it remains true that work-flow relationships on the whole were formalised and relatively independent of face-to-face contact - a feature of production control also reflected in the tables. The major forms of co-ordination between production departments were provided by specialist departments such as quality and production control, which ensured the flow of an appropriate volume, mix and quality. We shall return to this aspect of work-flow in section (c) below.

(b) Service Relationships

The axis along which much pressure was brought to bear in the production system was that between production departments and the service and engineering departments - in other words, between departments that would normally be designated as line and staff. This relationship is a major focus of research on organisations. Within it, conflict is thought to arise from two main sources: the authority commanded by those in the line and the consequent denial of promotion and other rewards to staff managers; and the incompatible orientations to work of the two groups, particularly the antagonism between production constraints and the more professional aspirations of staff managers.[3]

According to Sayles the 'typical service problem' arises when services become centralised to permit increased economy and control over their use. The service then becomes a scarce resource, and conflict ensues over its supply. Service managers feel embattled as they often have lower status in a firm than those demanding the service. As Sayles puts it:

> Service relationships incorporate a maximum of intraorganisational friction. They lack the regularity of work-flow contacts, are likely to have many mutually incompatible demands in them, and encourage temporary alliances based on reciprocity which further antagonise those who don't receive favoured treatment. (1964:81)

For Halewood's production supervisors services were a key issue. Specialist skills involved in materials supply, maintenance and quality control meant that the services took a formal responsibility for many decisions and contingent problems.

> With inspection, if the job is urgent... to explain the position to the quality control people, to get sufficient panels released to kill a shortage and then get the condition put right. I rely on inspection very heavily. The general foreman of inspection in Quality Control is very helpful. He understands the position. (Superintendent, Press Shop)

> Sometimes you can get it done yourself, other times you have to call in a service... We may receive panels from the Press Shop and there is something wrong with them when we go to jig them up. This we always report, or inform Process Engineering, and they will come down and look at the job and we get the ok to use or to reject.
>
> (General Foreman, Sub-assembly Capri)

Apart from services provided routinely, the 'panic situations' created by breakdowns and unexpected materials shortages were what chiefly governed production's perception of the services it received. A production supervisor who was two or three cars down on the volume

that should be going through his section, perhaps a couple of key workers short and who experienced a sudden breakdown of machinery was naturally prone to see all his problems crystallise out in the shape of a maintenance fitter appearing to turn up in his own good time.

Views varied, of course, and some production men were tolerant of service departments' problems. But production departments had more than their share of 'hard men'. A significant minority of them, perhaps a third, responded to a question on the sources of work pressure, saying that the difficulty of obtaining services was the major source. They felt that the formal system through which services were provided - handing in written requests at the maintenance crib, raising matters in meetings and waiting for a response to filter through - was insufficiently flexible for their needs. Merely requesting a service was not always effective. These two production superintendents voiced typical opinions.

> ... you've got to try to be tolerant. It's more frustration than anything else, that you say to yourself, 'Well, Christ, when are they going to get here? When am I going to get this service?' And you go on with this for so long. I think to put it in a nutshell, you've got to do your job, you've got to be hard. You've got to be hard, you know.

> We have to ask for everything we require, and we don't have to ask once... It is a constant battle with the service departments. They just don't supply a service as far as I am concerned.

Some production men also admitted that they played the game of exaggerating the seriousness of a request in order to obtain a service more quickly.

> Very often you have to exaggerate the situation to the point of stopping the plant to get assistance. It's an unfortunate

> fact of life. You have to put on an act - it's stopping your line if you are not down here in five minutes. Very often you do that sort of thing to coerce them to get down a bit sharp. (Superintendent, Trim Assembly)

> Normally you would think it was easy to request service. We found with d.c.s people ignored them. I shouldn't have to do this. I have to keep pushing people to do a job. It's come to people actually stopping work before anyone will do anything. (Foreman, Paint Shop)

From the point of view of the service supervisors and engineers, they were caught up in a web of pressure stemming from the line and amplified by higher management and the uncertainties of supply from outside vendors. Quality Control bore a responsibility for cars and materials rejected, and monitored their progress through repair until they were able to rejoin the line. Consequently, senior management continually pressed for cars previously rejected in order to avoid running gaps. Maintenance came under great pressure to have equipment repaired and running again. And Materials Handling, with limited stocks and storage space, experienced problems both in keeping to established schedules and in covering shortages. The services' own systems of manning and of allocating work became threatened if such problems as these had to be reconciled at one and the same time.

> The main pressure is the fact that we are running shortages ... This causes a terrific amount of pressure upon all supervisors. The most serious thing that could happen, that we could, by virtue of the fact that we haven't got the part, stop the line. If we haven't got the part, you are trying to think of some other way, some other method you can use. It may be that we could re-work another part... If we have a strike, for example, which we had recently, where the actual plant for the shortage wasn't working, this throws extra pressure onto the Materials Handling.

> We can sit around the desk with a cup of tea and we can plan our day, but there are a lot of intangible things. We can't cater for breakdowns - a build-up of breakdowns. Instead of one or two, we might get six or seven machines out of action. We can have a sudden crisis arising in the Press Shop or in the Metal Assembly in a matter of minutes.
>
> (General Superintendent, Production Services MS&B)

Production supervisors wanted services on tap. Their ideal would have been to be able simply to lift a 'phone and call in the fitter, engineer or electrician needed at the moment. But such a level of demand, transmitted direct to the services, was not practicable. On the one hand, few in the service and engineering departments thought that their activities ever could be a purely formal response. Overriding their own problems, they recognised that they were employed to make cars as much as were the production supervisors. They could not nor would they have wished tc delay attending to a production crisis. So there was an area of agreement between the service production sought and the one service departments thought they should provide.

> There is a procedure whereby the production foreman makes out a little slip of paper and says 'this equipment is not functioning', and he puts it in the maintenance area. If the maintenance foreman isn't there, it can wait 15 or 20 minutes. Fifteen or 20 minutes will give you a loss of 30 jobs. Everything has got to be put back to saying 'production comes first'. It is no use coming in here and saying 'I an an engineer officer and we will do this in our time'. You are no use as a maintenance superintendent. You have got to come in with the attitude that you are like a waiter in a restaurant. You have got to give a service. You have got to put away any ideas of being a skilled man or qualified - degrees or nationals or anything else. You have got to want to make motor cars, and this is how you go on.

On the other hand, with their own procedures to keep to and their own costs to meet, the services could hardly help adopting postures that placed them in conflict with supervisors in the line. Maintenance complained that production men would run equipment into the ground rather than talk over the problem before a breakdown occurred, and quality control supervisors spoke of a resistance on the part of production to do any more than was needed to 'slap the car together, get it stamped and push it off'. There was thus a definite area of disagreement, whereby the level of service production claimed was necessary if they were to produce to capacity was disputed.

> There is no means, as I see it, of working out the work loads ... The work that comes into this department, apart from routine work, is governed by all the paperwork and complaints that come in. And they often vary from a five-minute answer to a three-day investigation... I have to respond to things just as they happen far too much. I get very little time to really sit down and ensure that the place is properly organised.
>
> (Superintendent, Quality Control Technical Services MS&B)

> It is a very disorganised day. You are <u>not</u> left alone to do your job. You are interrupted all the time, continuous interruptions all the time, and the things which you are interrupted over are petty things all the time. This is the most annoying thing about it... Somebody will ring our main office and tell me we have got a job down which we already know about. Somebody might ring the superintendent's office and just mention that there is a job down, so our superintendent rings down right away, he wants information... the production superintendent has been passing, he has seen that line down, he has not made enquiries how long it's been down, he has gone straight to my superintendent... Again, perhaps the 'bleep' will go

> and you get called away from the top of a press, and you have got to climb all the way down. You may be in a queer position somewhere and your 'bleep' will go again, and you come down to the office, ring back in. This goes on continuously all along. Frustration after frustration.
>
> (General Foreman, Maintenance MS&B)

Varying perceptions of service relationships reflected the range of service supervisors' and engineers' accommodation to the pressures they experienced. Sometimes they were rather philosophical about it all, accepting that 'when production want you, you have to jump'. They also expressed passive resentment at their being 'poor relations' at the beck and call of production. At other times, however, service supervisors and engineers actively resented the pressure imposed by production. They regarded much of it as unnecessary pestering, and were conscious that their own objectives had to be curtailed - that they had to 'bodge' their own work to keep the lines running.

Two factors, position in the hierarchy and occupation, accounted for much of this variation in perception. When respondents were asked if they were able to organise their day's work, it was the foremen in service departments and junior engineers who said that organisation was usually possible, while the heads of department often claimed that their jobs were 'dictated by the sheer pressure and speed of events'. Foremen and engineers, it seemed, tended to cope with 'panic changes', breakdowns and the like by simply switching to another pre-arranged schedule. But it was the head of department who had to respond to production crises that might disrupt the entire departmental routine. Interestingly, in production departments the reverse pattern seemed to hold. There the foremen mostly bore the brunt of shop floor contingencies, and would stress that there was 'always something going wrong'; and their

responses contrasted with those of production superintendents, who tended to think that they could 'usually get back into stride'. This pattern reflects the manner in which contingent problems of the core production system were pushed out to the services.

Occupational factors in the service and engineering departments varied a good deal, and occupational differences particularly influenced the way pressure was received. Supervisors in quality inspection and Materials Handling, having no trade or professional qualification, mostly adopted a positive (or at least resigned) attitude to their role - they were, they felt, employed to provide a service and pressure was part of the game. In the Maintenance departments, where the skills of fitters and electricians were employed, there was more likelihood of production pressures being acutely felt. But it was the quality and production engineers and the toolroom supervisors who most resented their role within service relationships. Engineers and tradesmen were preoccupied with the technical problems of their work; interests in themselves difficult to reconcile with those of production foremen who merely wanted service work completed so that equipment could be started up again.

In the skilled occupations, subjective feelings of status were bound up with occupational autonomy. Because their jobs were relegated to a place of secondary importance behind production, being able to meet their own standards was of great concern to engineers and tradesmen. Similarly, the heads of these departments tried to preserve departmental boundaries. They wished not merely to react to production pressures, but to be able in addition to plan the department's work and allocate a reasonable share of resources to routine activities. Such attitudes are well illustrated by the toolroom supervisors, all time-served tradesmen jealous of their craft autonomy, and who particularly resented being under the effective authority of line supervisors.

> Production call the tune in the Press Shop. I as a foreman am at the beck and call of the foreman who is junior to myself... This gets to the crux of the matter, that an unskilled man should come up to me and say, 'I want this done, that done'... Basically I suppose he will have an idea of the job, but he hasn't got my problems in getting the job away. I would like to be in a position to be able to say to that man, 'I will give you this when I am ready, now clear off out the way.' But he is in charge of the line.
>
> (Foreman, Tool and Die Maintenance)

The great pressures to meet production's demands also gave rise to feelings of ambivalence concerning the degree of legitimacy that it was appropriate to confer upon this system of authority. Production engineers may have been the most extreme case, but complaints were voiced by many whose jobs contained a craft or professional element. Service supervisors and engineers often held contradictory notions about their roles. They would switch from one emphasis to another, affirming that their job was to service production, then complaining about the assault on their occupational autonomy, then returning to the first tack and so on.

> The only pressure we suffer from is from the production point of view. 'This job is very, very urgent. We require it yesterday,' sort of attitude. And they cannot tolerate a couple of minutes. Obviously we are allied to production. If we don't make cars, we don't get paid. So it's.. we do become involved with production supervision inasmuch as we attempt to get as better a way as possible as fast as possible, And he is only too eager to accept that the sooner it is done. So that's the stress and strain that I suffer from.

All this is not to say that the engineering and service staff spent their time grumbling about being under the heel of production.

Some denied the existence of pressures of which others complained, and some genuinely felt that they played as important a part as anyone else in the manufacture of motor cars, reasoning that production's dependence on them conferred a good deal of influence. However, theirs was a very different kind of influence from that wielded by production. Those whose skills fell outside the charmed circle described by the production departments experienced continual undermining of their status. Their efforts to preserve some part of their occupational autonomy naturally led them to question the authority of line management, so that here we observed the acceptance of the central belief system stretched thinnest. But if their resistance challenged the capacity of the organisation to reproduce its legitimacy, it hardly diminished its power to impose order.

(c) Auditing

The typical problem in the relationship between line management and specialist auditing groups, Sayles suggests, arises when performance is assessed by an independent group with privileged access to higher authority. Auditors may investigate a manager's department without consulting him on their findings, may arrive unexpectedly, issue an adverse report without first giving him a chance to put things right, and may refuse to help find solutions, taking their job to be only the identification of faults. For his part, the manager may become defensive, and attempt to cover up such problems as exist. Moreover, as Sayles indicates:

> Standards are often ambiguous and mutually incompatible. There are few no-go situations. There is almost endless room for maneuvering over whether or not a given manager has met a performance standard. (1964:95)

At Halewood, the clearest example of this relationship lay in the continuous struggle for quality. Hourly paid quality inspectors worked in each production department, inspecting parts and cars, and either they rejected them or passed them for 'buying off' for the next stage in production. For a production departments to have work rejected caused them difficulty as reject work had to be repaired or very occasionally scrapped, but in either case the volume of output was reduced. Furthermore, quality in some cases could be disputed. Sometimes standards were unambiguous - such as the number of spot welds on a member or the size of an aperture. But the smoothness of a panel's surface or whether a seam between joints had been properly filled were uncertain qualities to judge.

Sayles' idea of line managers making trade-offs between the various controls acting on them, continually negotiating 'a delicate balance among competing objectives', was thus in evidence and revolved around the conflicting objectives of production and quality supervisors concerning what was stopped and what went through. Production supervisors both tried to call into question decisions made by Quality Control over work of doubtful quality and spoke of trying to sneak little defects through - they were 'always trying to sell panels'.

> I must put it carefully. I don't want it to appear that I would willingly build bum jobs. But in my view, you have got to be sensible about it in this kind of set-up. Think: 'This job, although it is not right, it isn't going to hurt the customer, it isn't going to be unsafe, it won't cause any water leaks or it won't even show.' Yet someone says this is wrong. It has to be broken, relocated, rewelded, etcetera. I would like to see more common sense prevailing in Quality Control. (Foreman, Sub-assembly Escort)

You always try to keep to the basic, the best of your ability,

> to top quality. But of course you are under pressure and if you can get away with little things you get away with it. If there is a little ripple on the door - it might be that long, but it is there sort of thing. If I can get away with it I will. (Foreman, Paint Shop)

However, two aspects of the quality control function tended to reduce the extent to which 'terms of trade' between production and Quality Control were worked out in lateral interaction. Firstly, Quality Control was not a wholly independent audit of production's performance. Quality engineers responsible for setting standards and making the jigs and fixtures with which parts were checked, and who occupied a small section within the overall Quality Control function, did tend to feel fairly independent in the advice they gave - as this senior materials analyst explains:

> Q: What about volume schedules - do these cause you pressure?
> A: Yes, but I look at it this way. I may be wrong, I don't know, but this has always been my attitude. The schedule has got nothing to do with me. Whether there are any cars at all going out the gate has got nothing to do with me. My job is to advise management, to make the decisions when they have got all the other information available as to what priority quality has got.

But in the major quality section, in-process inspection, which provided the on-line checks, such an attitude was not possible. There the audit was much more constrained. Serious problems could arise if their decisions interfered with the smooth-running of production. Stopping the line was a measure often referred to in conversation, but to halt any sizeable length of track was almost out of the question. Even less drastic action, such as rejecting bought-in materials or scrapping work outright, could cause considerable disruption, a fact of which inspection

supervisors were well aware.

> The initial pressure, of course, comes from my own supervision... Because obviously in a job like mine, being Quality Control, my work is always being looked at by someone else and held up to criticism. So I get quite a stern line if the required quality standard is not being met. Now associated with this is the situation that develops and that I get accused of being too strict on my quality control activity by the production superintendent, because he accuses me of restricting him in his object of achieving production targets. And this is a.. it's a pressure that's constantly on me, you see.
>
> (Foreman, Quality Control PTA)

> On each assembly line, when the car is finished in one section, we should check it from that section, and if it isn't right in that point of time then we should stop the line until it is right. No vehicle should progress unless it's correct to specification in every way. But this isn't possible. You can't keep stopping production.
>
> (Superintendent, Quality Control PTA)

Senior men in particular were often highly conscious of the fact that they could not isolate their auditing function from a responsibility to production, so they were sometimes uncertain about taking decisions that might disrupt production.

> The most difficult work pressure is when we have a work situation where the whole line-flow system is jeopardised. Then there are pressures from production and from tool people who want to get the equipment operating... I think we have to develop a philosophy about this and realise that it is in fact a decision you have taken and should it turn out to be wrong then the way I see it anyway, if in fact.. one has to assume it is, you know. Is it right to stop the plant or is

> it right to let it run? I always think that having done it to the best of your ability and called in the best advice possible, then it must be right because you say it is right, sort of thing.
>
> (Superintendent, Quality Control MS & B)

Indeed, the very fact of casting Quality Control as a potential plant-stopper, when in fact little that it did came close to halting production, an exaggeration put about by Quality Control and production supervision alike, served to further undermine the power of Quality Control to intervene.

Secondly, while quality problems were the subject of negotiation between production and Quality Control, it would not do to overstate this aspect. For the most part, quality control ran as a purely technical check. If inspectors referred a vehicle or batch of materials to be reworked or even scrapped, it was rare for production supervisors to dispute the decision.

> If you don't produce the quality, you won't produce the quantity because inspection will stop the job. They just won't let it run. (Superintendent, Trim Assembly)

Each production area was equipped with repair facilities designed to cope with a standard flow of faulty material, and in the event of a serious stoppage of work, Quality Control would not be called on to make the decision. It would be taken by senior line management, who, acting on the advice of the Quality Control Manager, would order new stock or would authorise work to go through to be repaired later.

Thus, Quality Control only partially conformed to Sayles' model of an audit group. The quality departments enjoyed a degree of independence and relatively privileged access to senior plant

management, and in one sense it was their function merely to detect and report on sub-standard quality. But Quality Control also bore partial responsibility for work they rejected and shouldered a joint burden with production. Given the fact that quality control was an internal rather than a purely autonomous audit, and given its basically routine character, bargaining over quality and hence the potential for conflict in the relationship were considerably diminished.

(d) Stabilisation

Advance approval of a stabilising unit is needed before particular activities can proceed, Sayles suggests, because 'the organisation has not succeeded in adjusting its incentives and controls so that managers are induced to serve the over-all goals of the institution' (1964:103). In other words, the division of labour reflected in service and work-flow activities creates distinctive interest groups within management. If additional stabilising units were not there to check these interests, the groups would arrange things to suit themselves and to the probable detriment of the organisation. The fundamental problem encountered by stabilising units is that of finding a compromise between the special and often conflicting needs of the groups. The problem is exaccerbated because relationships that need to be stabilised are often governed by imprecise regulations, so that managers may subsequently argue the toss trying to influence the stabilising unit's decision.

At Halewood, where as we have seen departments were certainly highly differentiated, much stabilisation was built into the basic system of production control. Production targets, set by specialist Production Control departments, fulfilled the output requirements of the plant agreed between Operations

Management and Ford of Britain headquarters at Warley.

Production departments were engaged in a continuing dialogue with the scheduling departments. The hourly count of vehicles passing through each section was reported to scheduling, who co-ordinated the information together with information on current stock levels. The selectivity areas and other places where cars could be temporarily held, like the Paint Shop's mezzanine floor, provided a crucial buffer between production departments, enabling them to run at different schedules and still keep in step. Nevertheless, schedules had to be continually modified so as to integrate work-flow and to maintain an acceptable mix and acceptable batch sizes.

Production superintendents would contact Scheduling if they were being forced to run gaps, or could foresee either a shortfall or surplus of a particular model. But decisions on volume would invariably rest with Scheduling, since they were the recipient of relevant information. For example, this Paint Shop superintendent talked about the problems that arose in co-ordinating work-flow, and although he was appriased of the situations both in the departments prior to and following his own, Scheduling acted as intermediary.

> This morning, for instance, I came into work and the electrocoat breaks down. That's how I got that gap. It means that I haven't pulled the volume. Fortunately, the Body-in-White didn't have the cars because of the problem they've had in the framing. And it meant that I didn't hold them up. But I could have done. It could have affected the plant out of this world... I've also got about 50 vinyl roofs over there which are giving Trim a problem in build; but nevertheless I've got them and they're ready to go. So I said, well can you try and up the build on this particular model to-day, which will give me more room for storage.

Another relationship that included a stabilisation element was that between Industrial Engineering and production. The industrial engineers helped production supervisors man the lines at the start of each shift, but in addition they provided production with time and manning schedules for all jobs on the line and in the body construction areas. These were the RTOs, or 'required to operate' standards.

Work study is difficult to place in any one of Sayles' categories. It contained an element of innovation, involving one-off exercises in which engineers tried to calculate the most efficient use of labour; it contained an element of service, since manning schedules were essential for the control of costs; and it was partially an audit, since, once set, manning schedules became cost targets the production supervisors had to acheive. However, these departments' basic function lay in standardising the allocation of labour between production departments - a stabilising function.

It seemed at first sight that production might try to secure RTOs favourable for themselves, perhaps in the sense of allowing a little slack time and flexibility. Indeed, to a certain extent production did become involved in the process of setting times. It was not unusual for industrial engineers to say that they had to go to great lengths to 'get a job in', and to pursuade production that a new time or manning allocation was feasible. And for their part, production supervisors insisted on being consulted if jobs in their sections were being timed. Yet, to a man the industrial engineers maintained that theirs was the final word. There was no give and take over times, and once established times were not altered. Similarly, from the production supervisor's standpoint, work standards were the given parameters of his job. They were introduced with the process and changed only once a year for new models, or when

a section was being redesigned, or perhaps were re-studied on the rare occasions when workers disputed an allocation

> Oh, you can't complain... Someone on the production side would have to accept that the situation was just right for the standard. But this does not give us a great problem, and normally we accept what they say, and in very few areas would I or any of my people disagree with a standard that is set. (Superintendent, Trim Manufacture)

> It's very, very seldom that the Industrial Engineering department is proved wrong. (Superintendent, Trim Assembly)

Sayles tells us that stabilising groups are 'heavy initiators' to the line in relation to other staff groups; they do not merely advise and mediate but are responsible for final decisions. This was true for Production Control and Industrial Engineering — in the former case because information was centralised in that department, and in the latter because the professional nature of their work enabled engineers to take responsibility for labour allocation.

While both these stabilising relationships had become highly formalised, one that could be more accurately typed under the 'contingency patterns' Sayles envisages should characterise stabilisation involved Quality Control. In addition to its major function of inspection, Quality Control also dealt with feedback work-flow links. Of the many 'boundary problems' arising from the serial division of labour, quality was the most serious. A sudden run of quality or process faults in one department could disrupt work in departments further down the line. For example, a first class paint surface was impossible to achieve if the filling and sanding operations in Body-in-White were not properly completed; Final Assembly had an awkward job dropping the body onto the power train if the wiring put in by Trim Assembly was not properly secured; and

both Trim and Final experienced problems if Press Shop production and body construction had drifted from process.

These problems created a considerable potential for conflict with which the organisation had to cope. If, for instance, a door did not fit an aperture, it might be the fault of the department that made the door or the department that framed the body. But it could not be left to the departments themselves to argue out. The obvious choice for the role of co-ordinator was the Quality Control Manager. Persistent and complex quality faults often needed a team to deal with them, comprising perhaps quality and process engineers and production supervisors. This kind of group could best be convened under the auspices of Quality Control.

Furthermore in the case of simple repetitive problems, while production supervisors sometimes contacted their opposite numbers directly, such problems were mostly dealt with through the intermediary of Quality Control. Even when a production supervisor mentioned that he had been in touch with another department to clear up a problem of this kind, as often as not the person he actually saw was the quality control supervisor in that department.

> I had two examples this week. We had a roof strainer bar on the four-door, and too much adhesive had been applied between the strainer bar and the roof, which was giving us a line across the roof. We had a disc pattern on the Capri hoods. We've also had to contact them on a crease on the tailgate of the estate car. That's no problem. I contact my Quality Control superintendent. Their Quality Control superintendent and the Body-in-White superintendent will check it back for me. (Superintendent, Paint Shop)

In any event, a serious quality problem or one that

spanned the Body and Assembly plants would be a job for quality and process engineers. The division between plants was rarely bridged by production supervisors themselves. Production departments in the two plants were separated by perhaps three or four days' worth of work, so there would be little point in, say, Final Assembly contacting body construction directly. The problem would already have been in the system for four days.

> Most of the contact to MS& B from PTA is usually done through Quality Control; through us, you know. We seem to be the main link between the two plants. If production are having a problem on the PTA side that emanates from the build, they contact us and we get onto our opposite numbers in Quality Control in the Body Plant, and ask them to make sure there aren't any more jobs with that defect. (Superintendent, Quality Control PTA)

Although contingent problems giving rise to these feedback relationships in theory should not have occurred since quality was checked at every stage, this was an ideal never attained. Feedback links were regular - see Table 7.1 above. They could hardly be called informal, for all that they represented a reaction to unforeseen circumstances. The function of mediating between the Body and Assembly Plants bestowed a special status on the Quality Control Managers, reflected in their direct link to the Plant Managers, while departmental managers of apparently equal status had to go through the Assistant Plant Managers (see figure 4.1).

(e) Innovation

With all departments having a formal responsibility to

production, there were no true innovation groups in Halewood. However, the work of the production engineers, an example of what Sayles called a 'composite job', contained an innovation component. As well as being on call to production, engineers were engaged on relatively long term projects, of which several would be in progress in the plant at any one time. A project might involve working individually on a new process or layout, a pallet design or set of timings, or it might involve working as part of a team on a new section of track or production area. Frequently, although not always, projects were part of an upcoming model change.

One example, from the period during which the research was being conducted, involved a group of engineers engaged on streamlining the Engine Dress section. Engines came to Halewood from Dagenham, but they were 'dressed' within the plant, an operation in which components were attached - spark plugs, air filter, carburettor, etc. - to provide a complete engine ready for assembly. Previously, engines had been worked on while stationary, but in the new system they were to be mounted on a short, circular moving track, and the workers would be at stations, as on the main assembly lines. Such a project required the efforts of engineers from the three functions, since the new section of track required a process, new timings and manning schedules, a plant layout and new equipment.

The typical problems of innovation, Sayles suggests, arise when specialists groups are co-opted by comparatively powerful line managements to be used in absorbing day-to-day operational crises, rather than the tasks of development, design and original research for which they are best suited. The result is the inefficient employment of such groups and feelings of frustration on the part of their members. In this sense, Halewood's production engineers experienced considerable

tension between the operational and innovational elements of their jobs - i.e. between the service they provided to production and their project work. Descriptions of the engineering-production relationships in Table 7.4 and Figure 7.2 above, although not high in absolute terms, indicated one of the higher levels of conflict in inter-departmental relationships.

Interestingly, engineers tended to regard projects as their 'real work', for it was projects that involved them in the activities of the professional engineer. Here, they would be moving between a drawing office and an experimental set-up on the shop floor, interacting mostly within colleague groups and working under relatively relaxed time constraints. This contrasted with the work of servicing production, in which engineers responded to immediate demands for what was usually a routine service.

Although engineers sharply distinguished the two components of their jobs, frequently complaining that interruptions from production prevented them from getting on with their real work, they obviously did not see themselves as frustrated development engineers. Rather, looking upon projects as their true work was an attempt to create a little more space for this valued aspect of their jobs against the service component with which it competed, and against production supervisors who believed service to be the engineers' first priority.

There was also a clear sense in which the relationship was dramatised by both sides. It was common, wherever a service function had an innovation component, to see conflict that actually implicated both parties being simplified and blame squarely apportioned. Battle lines were drawn and the partner represented in a stereotyped fashion. Production supervisors tended to think of production engineers as 'paper engineers

instead of actual physical production engineers', and, neatly dove-tailing, engineers resented production's noticing only the service part of their work.

> I don't like engineers tucked away on the first floor like that, because they become too remote from the job. Their job as engineers is engineering the job we build, and I feel, like I say, that each foreman ought to have an engineer, or a group of foremen have an engineer, allocated to them so he can help solve a problem in that area. (Superintendent, Trim Assembly)

> The Plant Manager's attitude is 'cars are made on the floor'. They find it very hard to appreciate that we can help them better by not being on the floor all the time. We accept it is essential to go down, feel the tempo of things. But to just spend your life walking around the shop floor doesn't do anything. We like senior engineers to be in their offices occasionally, doing a bit of forward planning. (Supervisor, Quality Control Technical Services)

Thus, while Halewood's engineers did not conform with Sayles' innovation category, the category points to the incompatible priorities certain to arise when groups who perceive an important part of their role to be innovation have to work under rigid operational conditions. The conflict between production and those of the services with trade skills became more acute in the case of engineers, whose desire for autonomy was greater. For these men, conflict inherent in the control structure was heightened by occupational factors.

To summarise this section, the focus on problems typically encountered in lateral interaction enabled us to examine inter-departmental conflict in detail. Much potential conflict,

particularly conflict that might have arisen in work-flow relationships, was mediated by structural provisions in the organisation's design - and here we can point to the 'stabilising' activities of departments like Scheduling and Quality Control. Similarly, many relationships were routine, formalised exchanges, showing little evidence of the varying circumstances and contingent responses that usually prefigure conflict. None the less, such a fragmented system of managerial and production control as Halewood's gave rise to considerable tension between its separate centres of control. The highly articulated lateral division of labour created a powerful departmental exclusiveness, such that when work pressure increased - which occurred in the approach to full capacity production - the room for manoeuver between incompatible goals shrank. Pursuit of one departmental goal meant excluding another, while the senior plant management and corporate authority demanded both. In addition, those relationships based on the provision of a service, particularly engineering in its professional and time-served forms, involved both increased occupational differentiation and a more contingent exchange. Professional and craft work ethics were the basis of attempts at securing a degree of autonomy by engineering and service groups. Mobilising the work ethics was a major tactic of these groups in the process of setting the terms of their relationships with the production departments. In these cases, both sides experienced a heightened perception of conflict.

7.4 AGAINST THE STREAM

Following Sayles, in this chapter we focussed on the problems of interaction behind managerial conflict. The categories of Sayles' framework bore a sufficiently close resemblance to Halewood's network of interdepartmental relationships for it to be very useful in classifying and analysing our data on these activities. However, in other respects Halewood was a very different organisation from the kind Sayles envisages, and this is a point to which we should now devote some attention.

Implicit in Sayles' model is a type of organisation in which are incorporated purchasing, marketing and product development, as well as production, and where fluid 'trading' behaviour and 'contingency patterns' predominate in all major interactions. The model thus assumes an organisational setting in total contrast to the divisional corporate structure of Ford and Halewood's rigid system of production control. Yet despite these differences between the Sayles model and our case study of Halewood - indeed, precisely because the contrasts were so sharp - the model retains a heuristic value. Where the assumptions upon which Sayles bases his model are reversed, we are alerted to look for contrasting organisational dynamics.[4]

To begin with, Sayles suggests that contingency patterns have the tendency of infecting all organisational relationships with their dynamic properties. This occurs laterally, when workflow and service relationships are initially created on the basis of managerial initiative, and vertically through decentralisation down to the base of the pyramid. Sayles notes that 'traditionally they (contingency patterns) might all have been handled by the head of the organisation; only relatively recently have these activities been incorporated in the jobs of the lower-level executives' (1964: 83). In contrast, in Halewood the tenor of rigid operational relationships remained the predominant feature of organisational activity. Important mechanisms of control, such as

plant meetings, ensured that decisions were prevented from percolating down but were continually referred up the hierarchy. Similarly, given the essentially formal character of the control system, many contingent as well as routine problems were dealt with by established procedures.

For an example to illustrate the tendency of organisational relationships to be initiated in 'trading' activity, Sayles choses a case study of industrial engineers employed in a chemical plant. He draws a picture of a staff group engaged in improving departmental and individual standing by seeking integration with line activities. The engineers tended to evaluate their performance in terms of production's demand for their services and the notice production took of their advice. They did not wait to be called in, but maintained close contact with production in order to anticipate their needs and to facilitate the search for new work. These engineers had fully internalised norms of behaviour regulating the administrative system, they were 'outsiders trying to get in... continually initiating interaction on unrecognised problems' (1964: 234). Moreover, the engineers normally progressed in their careers by moving into the line.

The situation in Halewood was rather different. There engineers sought to protect their project work rather than ally themselves with production, to shift in the direction of innovation and push back the encroaching service aspect of their work. The reason they tried to create room for the 'professional' side of their jobs lay partly in the intrinsic appeal of projects - this came across strongly in their complaints that cast the demands of production as 'interruptions'. But in addition, in contrast to Sayles' case, the career prospects of Halewood's engineers were restricted virtually entirely to their own departments. While junior engineers occasionally joined the line as foremen, the move never occurred when they had risen to senior engineer or supervisor. Even at the lowest level, the choice presented

engineers with a dilemma: moving into the line provided a career with far less limited horizons, but it also meant giving up the work for which they had trained, and probably taking a cut in salary as well. In any case, the powerful consensus of beliefs enshrining production goals reflected an organisation culture which, allied with a policy of selection, made a move into the line all but impossible for those with specialist skills.

His framework of lateral interaction further enabled Sayles to point out a source of organisational change. Conflict arising out of typical problems in categories of interaction produces the tendency to change towards activities in which, for various reasons, managers prefer to engage. Such 'dynamic shifts in administrative patterns' occur when people seek higher status than they presently command, positions which are easier to control, to protect their standing in the firm, or to confer professional authority on their decisions. Thus, for example, Sayles shows how managers engaged in service activities try to effect the shift to advisory, then to auditing and then to stabilisation activities. Similarly, advisory groups often press for a role as innovators.

> The means of attaining this increased status are multiple. Dropping activities that do not enhance prestige is one such technique, and, analogously, claiming tasks that the organisation already accepts as indicative of status is another. Similarly, restricting the job to those with recognised 'professional' training facilitates the claim to such prestige. In addition, moving one's position in the work flow (at which certain decisions have already been reached) to an earlier stage (where one must be consulted before, not after) is an appropriate tactic. (1964:117)

Again, the tendency of contingency patterns to spill over into all organisational activity was not found in Halewood.

Indeed, numerous instances from the research could be cited which show Sayles' pattern of organisational change being reversed. Groups formally in control of a stabilising or audit function were sometimes unable to withstand the pressure to reduce it to a service or advisory activity. For example, this quality analyst explained how his task of accepting bought-in materials, actually one of stabilisation, was reduced to merely observing the form in an advisory capacity.

> Something else I'd like to see changed. I'd like to see a situation where we could effectively control the standard of parts coming into the plant... (production are) waiting on that lorry. The lorry comes in and you grab your ten per cent, and the other 90 per cent's on its way, and before you've found out there is a fault they've used some of it.

Finally, while Sayles suggests that managers enjoy a measure of success in their efforts to change administrative patterns, again the reverse was more often the case in Halewood. For example, production superintendents frequently commented that they should have a maintenance and production engineering service within their own departments - a change that would have substantially reduced the centralisation of services and transferred much control over costs from the hands of senior management into the hands of superintendents, not to mention disruption of the established autonomy of service departments themselves. Such provision only existed in the Press Shop, where Tool and Die Maintenance came under the direct control of the Press Shop Manager. It was the importance of the press operation, both for Halewood and for Ford's other European plants making the same models, that was responsible for this departure from the norm. There was little chance of this provision being implemented throughout the plant. Thus, although there was a call for a particular change from an influential group, namely the departmental superintendents, forces opposed to the change in the

line hierarchy were far stronger.

Instead of motion towards progressively more decentralised and innovative patterns, at Halewood the vector pointed in the opposite direction. The reason clearly lay with what we earlier identified as the production consensus. Because the organisation's central belief system so narrowly reflected the work-flow linking production departments, and reinforced the formal control systems governing these activities, 'contingency patterns' to a very large extent bore the stamp of inflexible 'operating patterns'.

7.5 CONCLUSION

Our emphasis, in this chapter, on conflict that typified various categories of inter-departmental relationship might appear to be at variance with both the earlier experimental results obtained from testing the causal model (Chapter 2) and the stress on a unifying organisation culture based on the production consensus (Chapter 6). However, throughout this chapter the part played by lateral conflict in making operational the formal controls of production was stressed. It was further indicated, in the section immediately above, that the system of production control set the underlying conditions of conflict.

Although inter-departmental conflict mirrored the conflict between operational constraints and various trade and professional work ethics in the supervisory body, much as predicted in our original causal model, in another sense the powerful constraint of technical control systems effectively submerged these deep divisions between personnel. A set of beliefs, the substance of which was production objectives, set the boundaries of legitimacy

of the bureaucratic order to encapsulate conflict. Groups who wished to pursue their occupational interests did become alienated from the consensus, but they were always ambivalent in their denials of production's ultimate authority.

More particularly, there existed a reciprocal link between conflict and consensus. Although this is perhaps difficult to picture, our critique of the original differentiation-conflict hypothesis (initially from empirical findings reported in Chapter 2 and later consolidated with the studies, particularly of Beynon and Burns, in section 3.2) was based on the notion that conflict takes on a quite different character in different organisational settings. Where there exists an established pattern of organisational control, such as at Halewood, interaction is likely to reinforce the pattern against the resistance of groups relatively alienated from its major imperatives.

Lateral tensions themselves played a major part in the process of consensus formation. They were the every-day medium of interaction through which production supervisors imposed their objectives on other groups, and much of the high pressure of work in the plant stemmed from this source. Informal interaction thus strengthened the institutional order. When, for example, production foremen pressed for a service they had previously requested, it was a way of backing up the formal control system. Resistance to such pressure might seem to be opposing formal control, but if the service department did resist it was for an equally formal reason, namely the perception that they might exceed their own budget if they gave in to all the demands on them.

In organisational settings like that of Halewood, lateral conflict can serve an important function for the control system, namely that of defusing resistance to corporate authority. Thus, people blame the apparent lack of consideration

of those in other departments, rather than the controls that put pressure on all. Similarly, conflict itself can be dissipated and pressure from colleagues accepted - viz: 'He's only doing his job' - where the same pressure from a boss might be resented. Certainly at Halewood, both these responses to inter-departmental pressures were typical. (On this point, see Salaman, 1979: 149, 158-9.) However, it is also important to go a step beyond the sociological issue, that the division of labour within management served important legitimating functions, and recognise the corresponding economic function, namely that lateral work relationships were an important conduit for applying pressure and intensifying managerial labour.

The full significance of lateral conflict can be grasped only in the broader context of organisational control. To be sure, conflict occurred along the cleavages of occupational differentiation, a pattern dictated by the use of specialist skills in providing production services, but this division of labour encouraged groups to both apply and resist pressure. Indeed, at Halewood it was difficult to view processes of lateral pressure and resistance as anything other than an integral part of control, especially significant because here supervisors themselves contributed the mechanism for intensifying their own labour.

NOTES

1. Mediation of conflict, a subject that has often interested organisation theorists, was discussed in Chapter 2. Although similar, the concept does not quite capture Sayles' notion of a sensitive issue withheld from people who could not be trusted to arrive at a 'balanced' decision.

2. Blau (1955:101 ff.) also used the notion of typical problems and patterns of response to indicate the link between formal and social spheres. He suggested that typical patterns of response further give rise to problems - are dysfunctional or create unanticipated consequences - and herein lies the 'dynamic of bureaucracy'.

3. See, e.g., Dalton (1959), Ch 4; Burns and Stalker (1961), Ch. 9; and Litterer (1965), Ch. 18.

4. The notion that issues of importance in organisations are typically negotiable - are generated in 'an intricate process of brokerage involving individuals inside and outside the organisation', as Sayles puts it (1964:218) - has increasingly come under attack from recent writers. See, e.g., Benson (1977).

Chapter 8

THE IMPACT OF SELECTION

That selection is a precondition of organisational control was an issue originally explored by Weber. Closure of the route to the top, he suggested, is what constitutes senior management as a corporate group, whereby authority is conferred only on its restricted membership. When the organ- promotes, it attempts to secure in senior positions people compatible with, and who have a record of actively supporting, the corporate order within lower organisational strata.

Corporate authority in Halewood was based on a belief system which we earlier identified as the production consensus. These beliefs represented corporate order in the 'strong' sense - they were firmly held by senior line management and were granted varying degrees of legitimacy by the functional groups within the production operation. For the consensus to be sustained, it was necessary that appropriate people should be promoted into positions of authority - appropriate in the sense that they should be effective bearers of the consensus. This process had two related, but conceptually distinct aspects. Firstly, if higher management was to endure as an elite capable of imposing its standards of excellence on junior managers and supervisors, there had to be a selection of suitable personality types from the pool of supervision. Secondly, the specific nature of the consensus, the fact that it encapsulated particular beliefs and excluded others, had to be accommodated. In this chapter, where we look at the impact of selection reflected in the attitudes and perceptions of our respondents, each of these dimensions will be examined.

Before looking at these mechanisms of selection, however, it may be useful to have a general idea of supervisors' perceptions

of authority. The practical tasks of ensuring the stability of a power structure, Blau has argued, is to obtain consent willingly conferred on the person in office. This

> requires that the group <u>not</u> be allowed to bestow the dominant position upon the member of their choice. Whoever is placed by the administration in the position of supervision must be able to command the willing obedience of the rest of the group. The supervisor's official power to administer sanctions, vested in him not by the group but by the administration, generates the voluntary compliance of his subordinates, since it constrains them to adapt to their dependent position by socially accepting the obligation to follow many of his directions. Whereas the respect of the group produces the power of the informal leader, the power of the bureaucratic superior produces the respect of his subordinates... the official power of sanction, externally bestowed, is the ultimate source of bureaucratic authority. (1955: 176-7)

Thus, the root of authority lies in superordinates' capacity to make the decisions expected of them by subordinates, given that an overall structure of authority is already in existence.

At Halewood, the hierarchy within departments could have been examined by breaking down the various measures already described according to the three levels of supervision. But there is no reason to expect perceptions of the lateral division of task to vary with the vertical division of authority, and neither did they. This analysis provided far fewer correlations than the breakdown by functional and departmental groupings, and those it did provide were usually weak or fairly obvious.[1]

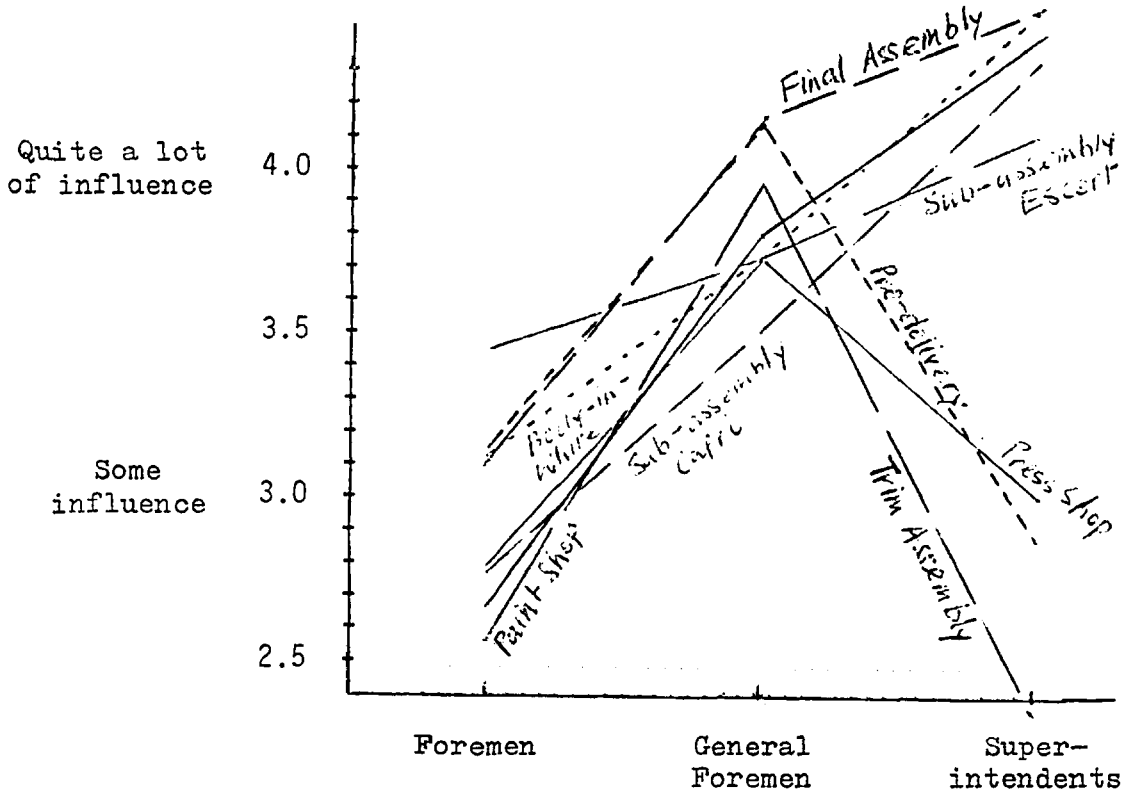
Instead, the well known control graph method of Tannenbaum, questions for which were included in our representative survey, was used. At the time the research was conducted there was much interest in power in organisations, and the questions were included as a contribution to this general approach (as well as a potential variable in the original causal model of conflict), but the method developed by Tannenbaum and his colleagues has since been used fairly often as a means of describing structures of organisational power.[2]

8.1 PERCEPTIONS OF THE INFLUENCE DISTRIBUTIONS WITHIN DEPARTMENTS

In the question used by Tannenbaum, respondents are asked how much influence they think people in different hierarchical positions have over decision making. The strata in the organisation's hierarchy are identified, and respondents asked to rate each of them on a points scale - usually a five-point scale varying between 'hardly any influence' and 'a very great deal of influence' (Tannenbaum, 1968).

In our pilot study, conducted with 33 foremen and forewomen, respondents seemed to have little idea of or concern with decision making beyond the level of their own departmental superintendent (another indication of the powerful departmental control system). It was therefore decided to confine the question to respondents' perceptions of influence within the departments, and forego an examination of wider managerial authority. The question asked about the influence each level of supervision had over the activities of those in the whole department when it came to decisions on important shop floor

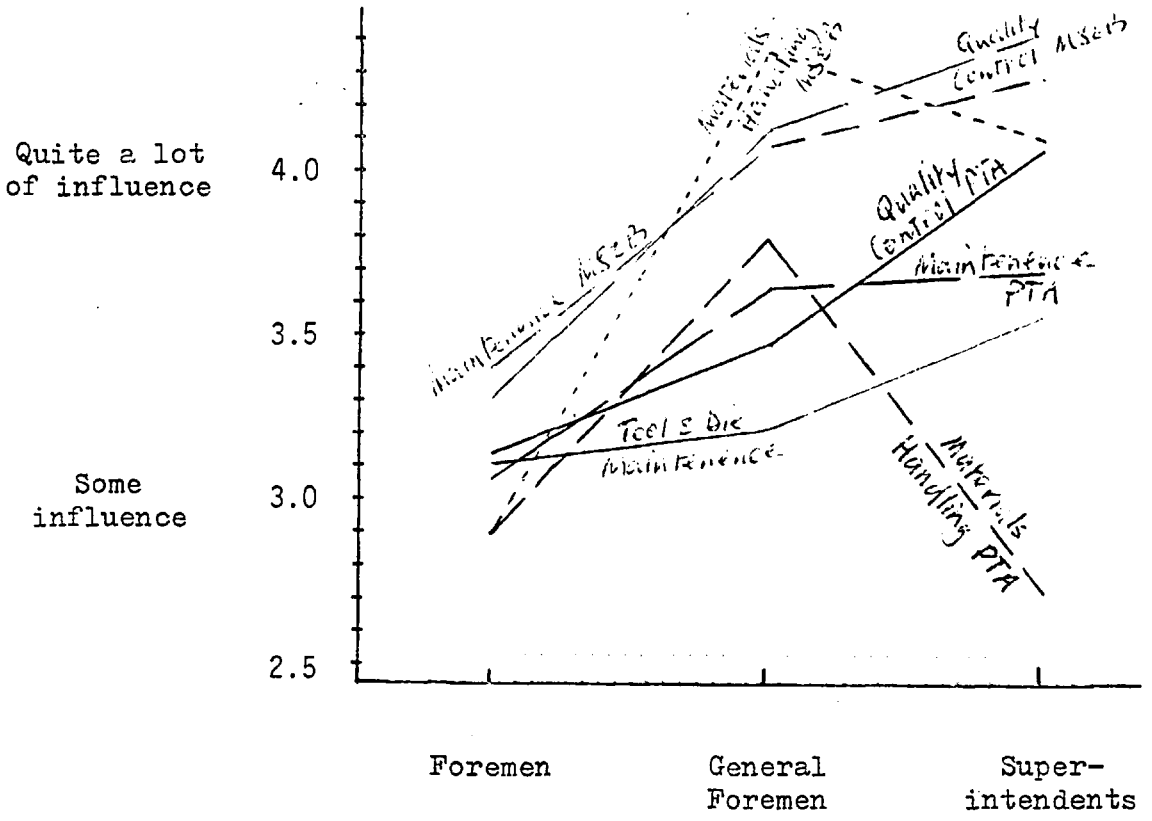
FIGURE 8.1(a) Perceptions of Influence in the Production Departments



issues (Appendix B:V). The mean scores for supervisory levels in each department were plotted on graphs giving the control curves. In Figures 8.1(a), 8.1(b) and 8.1(c), we show the curves for the production, service and engineering departments respectively.

Respondents generally reported that actual influence was more or less what was organisationally prescribed for given hierarchical positions. Superintendents and engineering supervisors were perceived to wield more control over departmental issues than general foremen and senior engineers, while the latter had more influence than foremen and engineers. However, some responses differed markedly from this pattern.

FIGURE 8.1(b) Perceptions of Influence in the Service Departments

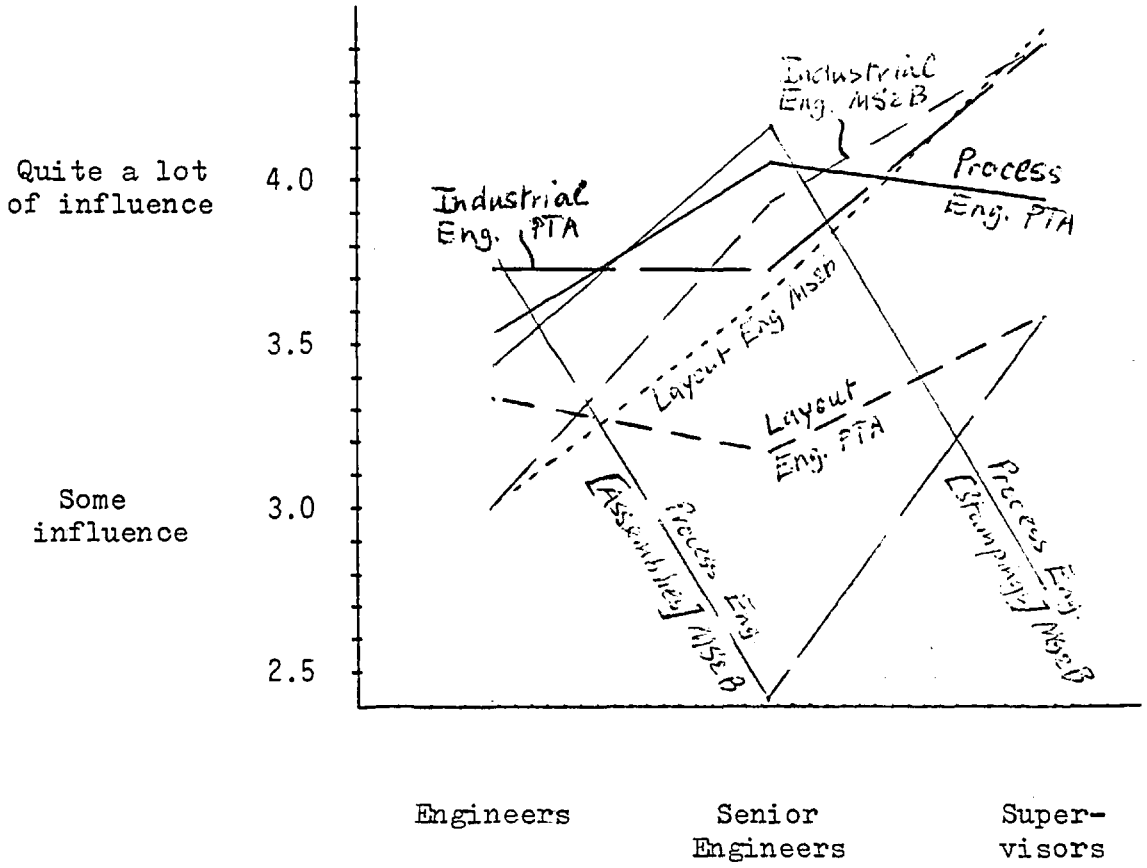


For just over half the departments, control curves had a positive slope and graph points fell approximately on a straight line. But in remaining departments, the shapes of their curves were quite different. In a few departments the slope of the control curve, although positive, was relatively shallow. In Tool and Die Maintenance, for example, each of the three levels in the hierarchy was accorded a similar level of influence. Another pattern appeared in two of the engineering departments, namely Layout Engineering PTA and Process Engineering (Assemblies) MS&B, in which the middle rank of senior engineer was perceived to have least control.*

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* The individual departments were identified in Chapter 4, and are depicted in the organisation chart - Figure 4.1.

FIGURE 8.1(c) Perceptions of Influence in the Engineering Departments



However, these two patterns occurred in only a few departments. Apart from them, there was a more common deviation from the 'norm' of control increasing fairly uniformly with hierarchical level, namely that in about one-third of departments in the sample control curves were the shape of an upturned V. In these departments, the heads were judged to lack any real control over what went on in the department and over their subordinates. Sometimes they were seen to have only about the same level of influence as engineers and foremen (Press Shop, Pre-delivery, Trim Assembly and Materials Handling PTA); in one department (Process Engineering [Stampings] MS & B) the supervisor was judged to have even less influence than the bottom rank

of engineer; and in two others (Materials Handling MS& B and Process Engineering PTA) the head was judged to have less influence than the middle rank although more than the bottom one.

The fact that this variation was marked only at the level of head of department was almost certainly the result of there being one person occupying this position. When respondents answered questions about foremen, engineers, senior engineers and general foremen they were reporting on groups, and their responses would naturally tend to an average. But when they were judging their superintendent's or engineering supervisor's influence in the department, they were refering to one man, so responses were bound to be more varied.

The two major patterns of influence distribution - the 'norm' in which influence was perceived to increase with hierarchical position and the main 'deviant' case in which the head of department was credited with comparitively little influence - may be examined further using comments that were recorded during interviews.[3] Taking as examples two production departments typical of the two patterns, namely the Press Shop and Sub-assembly Escort, the following comments show clear differences in the part played by superintendents. The Press Shop was an example of 'weak leadership':

> The superintendent does not have much influence over the foremen because the general foremen is their boss. He does have some influence, especially with the three shifts and with the labour. (General Foreman, Press Shop)
>
> The way he goes about things he has no influence, but he should have. (Foreman, Press Shop)
>
> The Press Shop tends to run on its own. The foremen look after their own lines. (Foreman, Press Shop)

These comments contrasted with those from people in Sub-assembly Escort, a department that conformed with the leadership 'norm':

> I don't have influence over the superintendent, that's the wrong word. He asks my advice and I tell him, but if he makes a decision I do it. Managers are not so important The superintendent is the key man on the floor.
>
> (Foreman, Sub-assembly Escort)

> We have quite a lot of influence over the superintendent. He depends on us to feed him the right information.
>
> (Foreman, Sub-assembly Escort)

> A foreman doesn't have much influence over the superintendent. By the time he gets involved the foreman is out anyway. (Foreman, Sub-assembly Escort)

In a high-volume, mass production technology like the motor industry supervisors, especially those in production, required long experience to get a feel for the job. Consequently, a common reason for heads of department to be accorded little influence was if they were new to a department or if they were recently promoted.

> The superintendent doesn't have much influence over us. We never see him. He's a new guy, so there's not much respect for him. (Foreman, Press Shop)

However, in other cases an inexperienced superintendent would be regarded as a 'new broom', so the final determinent was always individual personality.

Interestingly, the way in which heads of department talked about delegating work tended to dove-tail into the perceptions their subordinates had of them. The heads with little influence tended to explain away their inability to control

their subordinates' work by saying they were leaving well enough alone. But their subordinates were quick to see through this, as these paired comments show.

> The new superintendent is not conversant with the job enough to interfere with the foremen. (General Foreman, Pre-delivery)

> We are subject to pressure in this area to sell cars... provided a foreman is doing his job well, I won't bother him. Even general foremen are guided by foremen with shop floor knowledge. (Superintendent, Pre-delivery)

> The superintendent has some influence - especially on nights he runs the whole show. But it depends on the personality. (General foreman, Materials Handling PTA)

> The Materials Handling attitude is that the foreman is left to carry out his functions with freedom, and only in extreme cases is he chased by his superiors. Only if we were falling down would someone interfere; or if there was a change of models would we have meetings... If he's doing his job then you leave him alone. (Superintendent, Materials Handling PTA)

> The superintendent does not have much influence over us. I've never seen the general foreman and the superintendent together or seen the superintendent operate... There's no personal contact, so it's difficult to answer. (Foreman, Trim Assembly)

> I don't have much influence with the foremen. I don't deal directly with them, I go through the general foreman always, without fail. Occasionally I bring them all in, but only rarely can I do this, though I do listen to an odd idea. If they are not hitting volume or are experiencing shortages I do intrude. But they are the bosses in their own departments as long as they are building ok. (Superintendent, Trim Assembly)

By contrast, heads of department who were influential with their subordinates spoke of leaving the details of the job to foremen,

and though they may have had little actual contact with foremen, they were perceived as being in the background, dealing with 'policy' or 'finance'.

> (The supervisor) has little (influence) in the day-to-day running, but a lot in politics. You rarely see him but he always backs us. (Engineer, Industrial Engineering MS& B)

> I generally try to leave the details with the lower levels, and I sell it up the tree... I have the veto and make the policy decisions. (Supervisor, Industrial Engineering MS& B)

What was odd about these quotations was that while superintendents mostly appeared to have little contact with foremen, subordinate supervisors' perceptions of their influence varied widely. 'Weak leadership' resolved itself into general isolation of the departmental head. He rarely ventured onto the shop floor, was not trusted to back up members of his department in the event of some dispute, and brought himself into contact with subordinates only when forced to - if declining output or quality standards brought pressure from higher management. By contrast, 'strong' departmental heads had a presence even when absent, in the sense of being thought to be active in management 'politics' and ready to back the department.

These differences in perceived influence distribution seemed mostly ideosyncratic - certain departments happened to be headed by people regarded as having little influence, while others did not. However, it is possible that more systenatic reasons played a part. There may have been a tendency for departments that could be classified as the most hectic or difficult to run to be headed by men regarded as poor leaders. A case could be made for such a hypothesis from the control curves of the Press Shop, Trim Assembly and the three Process

Engineering departments. However, other departments with 'weak leaders' - Materials Handling, Pre-delivery and Layout Engineering - could not really be said to be among the toughest to run, so this explanation is not complete.

The difficulty of running departments varied fairly directly with the division of labour, and one might have expected the control curves to reflect this influence. Bearing in mind the differences between working environments in the plant, production departments could be expected to have more 'autocratic' hierarchies - i.e. relatively steeply sloped curves - and service and engineering departments to have more 'democratic' curves.

Although there were no clear-cut differences in the patterns of influence reported in the production, service and engineering groups of departments, this line of enquiry offers possibly the best explanation of variations in perceived control. In the control curves for production it is possible to distinguish two distinct types: curves with a relatively steep, straight line gradient, and those in which superintendents were clearly regarded as being without much influence. Superintendents' scores fell into two distinct clusters; they were either thought to be running the department, or they were attributed only the same amount of influence as the foremen. General foremen and foremen in production had relatively invariant levels of influence, corresponding with their formal hierarchical position.

Service and engineering departments, on the other hand, showed more varied patterns of response. As expected, the slopes of control curves were on the whole flatter than for production, making these departments more 'democratic'. The general foreman/senior engineer level was attributed with influence varying almost as widely as the superintendent/super-

visor level. And both of these trends were more pronounced in the engineering than in the service departments. It is also significant that each of the three Process Engineering departments had a supervisor seen to be a 'weak leader'. The process engineers, it will be remembered, filled a role similar to maintenance, and encountered far more of the pressures of production than did other engineers.

Thus, actual influence deviated from that formally prescribed. The tendency increased in senior ranks, being most pronounced at head of department level. The deviation from formal patterns was most sharply distinguished in production departments, where the demands of the control system, it seems, gave rise to quite definited ideas of who was a success and who was a failure as a departmental head.

Legitimacy involves the coincidence of perception and aspiration, while loss of legitimacy implies a divorce between the actions of senior people and what subordinates think they ought to be capable of doing. On this criterion, the level of criticism of superordinates among our respondents reflected a departmental hierarchy apparently held in low esteem. Fully one-third of department heads, in the eyes of their departments, did not deserve the authority of their formal position. For this to be so might appear to place the legitimacy of formal authority in the plant as a whole on a rather shaky foundation. However, what weighed most in the minds of subordinates was the technical ability of their bosses. Judgements tended to be based on superintendents' capability to manage their departments in conformity with organisational demands. Organisational legitimacy therefore was not necessarily undermined, even if a superintendent's credit was constantly at risk in his own department. Indeed, the pressure from below was yet another form of the 'self control' operating in the system of supervision; one which had much the same effect as lateral interaction, but which acted on superordinates.

8.2 PROMOTION

Given that the legitimacy of authority within supervision showed a heavy reliance on superordinates' technical abilities, and that respondents perceived much variation from what was the organisationally prescribed pattern of influence within the departments, it is important to examine the mechanisms placing people in positions of authority.

For those contesting entry into top management, Ford's selection procedures were formidable. The company systematically graded all its salaried employees according to the degree to which they were 'promotable'. In a secure room in the plant, the colour-coded assessments of managers and supervisors were displayed on a large organisation chart, so that it was possible to see at a glance who were regarded as weak managers with promotable subordinates. At the individual level too we observed some innovative tactics of selection. The company was not above putting an aspirant for a senior post on trial by moving him to a new job in a plant where he had little formal authority.[4] Nor was it unknown for them to remove a manager by progressively cutting back his area of responsibility and causing him to resign. Within the departments, selection procedures were no less precisely defined. We came across several examples, particularly at the level of departmental superintendent, of people who had returned to their previous job because the pressures of the more senior post proved too much for them.

Selection produced a stratification of the body of supervisors and engineers, and in the next sections we shall examine selective mechanisms in terms of some of the dimensions of this process.

(a) Varying Career Chances

One of the findings that consistently emerges from research on supervision is that bodies of supervisors divide into those who seek and obtain promotion quickly, and those who remain in the lower levels of the hierarchy for a relatively long time. Beynon in his Working for Ford (Beynon, 1973) and Nichols and Beynon in their later study, Living with Capitalism (Nichols and Beynon, 1977) each took the view that supervision is a control of labour which is itself subject to the control of the division of labour and the intervention of higher management. They focussed on people moving through a structure of relationships, rather than on the position occupied by supervisors.

Beynon (1973: 95-8) described a very tough selection process, in which the criterion of ability was in essence the degree to which supervisors and managers exploited labour. It was only the 'hard heads' who moved up, and this meant taking a 'hard line' with the workers.

Nichols and Beynon (1977, Ch. 4) provided a more detailed account of supervisory promotion. They stressed how promotion forced supervisors not only to conform with but to actively pursue company objectives. It was the chance of promotion that was so important in motivating supervisors, for relatively few rose very high. Nichols and Beynon distinguished 'traditional' foremen from a minority of 'management men'. The former were usually the older foremen, who valued their relationships with the men, time-servers who acted as if they knew they would be staying in the job and not moving up. These contrasted with the latter group of ambitious, confident men, who acted and thought like 'plant level manager accountants'. While all foremen took part in the control

function, with 'traditional' foremen and 'management men' alike using their raport with workers to manipulate them, to spot 'troublemakers' and to 'chat up' the shop stewards, it was the 'management men' who were most active both in controlling workers and in seeking promotion.

Similarly, Fletcher (1969) found that foremen with successful career histories were less critical of their firms, felt themselves to be less in conflict with 'the system' (i.e. with their firm's hierarchy) and enjoyed closer relationships with other supervisors than foremen who had not been successful in promotion. Finally, while Dunkerley's distinction between 'working class' and 'middle class' foremen was not systematically related to organisational control beyond the unsubstantiated claim that 'most organisations attempt to guide their foremen towards the middle class end of the continuum', it too focused on the process of excluding those thought unsuitable for senior office, which is the hallmark of selection (Dunkerley, 1975).

In the representative sample of respondents from Halewood, the distributions of ages and lengths of service strongly suggested the existence of such a division in the ranks of the plants supervisors and engineers - Tables 8.1 and 8.2 below. The lengths of service shown in Table 8.2 refer to total service with the company, and where a respondent had joined as a worker this service is included. Not all the service need have been at Halewood. About half of the general foremen and most of the superintendents were originally from Dagenham, having come for promotion when Halewood opened in 1963. A very few of the foremen had come from Dagenham for promotion, but most were local men who had joined as workers. Many were in the first batch to be employed in 1963, and had been promoted within a year.

TABLE 8.1 Age Distribution

	Age (years)				Mean Age
	20 - 30	31 - 40	41 - 50	51+	
Foremen	5 (12)	22 (51)	10 (23)	6 (14)	40
General Foremen	0	5 (21)	12 (50)	7 (29)	46
Superintendents	0	1 (8)	8 (62)	4 (31)	47
Engineers	7 (37)	10 (53)	2 (11)	0	32
Senior Engineers	0	4 (50)	4 (50)	0	40
Supervisors	0	0	3 (100)	0	43

TABLE 8.2 Length of Service Distribution

	Length of Service (years)					Mean length of service
	0 - 5	6 - 10	11 - 15	16 - 20	20+	
Foremen	3 (7)	17 (40)	16 (37)	5 (12)	2 (5)	12
General Foremen	0	5 (21)	9 (37)	3 (14)	7 (29)	17
Superintendents	0	1 (8)	2 (15)	1 (8)	9 (69)	22
Engineers	7 (37)	9 (47)	3 (16)	0	0	7
Senior Engineers	0	3 (38)	4 (50)	0	1 (13)	12
Supervisors	0	0	0	3 (100)	0	16

Figures in brackets refer to row percentages

The lengths of service of foremen fell into a bi-modal distribution, dividing them into those who had been foremen for seven or eight years and men who had remained for 13 or 14 years at this level. In terms of the earlier discussion, these groups probably represent, respectively, the time-serving foremen and the more ambitious (or lucky) men who may move on relatively

quickly. But the age distribution of foremen was uni-modal. Thus, although respondents remained as foremen for lengths of time which could vary quite widely, the majority were in the same age range. The largest proportion was aged between 31 and 40 years, but had served anywhere between six and fifteen years. This meant that some foremen, among whom would probably be found the successful ones, had served for comparatively short lengths of time, but the majority of them were in their thirties.

The pattern for foremen of a uniform, fairly high age combined with varied lengths of service, was reversed in the case of heads of department. Superintendents for the most part were long-servers but they were relatively young, the majority being in the 41-50 age group. The age distribution for the general foremen was almost identical with that of the superintendents, although the latter had served longer. This indicates two things: promotion may come a little quicker once past the first line of supervision; and superintendents were the foremen who had obtainted their promotion quickly, while general foremen were more often drawn from the ranks of the longer-served foremen.

The message seems to be a fairly simple one: join young and avoid getting stuck at any one stage. At Halewood the successful could get their promotion while still young, but they had to put in long service - the 'average superintendent' was only 47 but had served 22 years. The emphasis on service underlines the fact that a high volume, mass production system demands supervisors and managers who have had the experience that comes with service.

If the promotion ladder was a stiff climb for the production and service men, it seemed a little easier for

the engineering staff. At each level, they were both younger and had put in less service than their counterparts in service and production. This was almost certainly the result of their being qualified before entering Ford's employment. All of the engineers had obtained at least an Ordinary National Certificate in the relevant branch of production engineering, and some had Higher Nationals and experience in other firms. The initial rung on the ladder, the post of engineer, was a first appointment and not a hard-won promotion as in the case of foremen. Similarly, the engineering staff sometimes joined Ford from other companies, which is again characteristic of professionals and was not often the case with supervisors.

On the other hand, the engineers paid compensation for their relatively easy passage. Their promotion ladder, for all practical purposes, ended at the level of head of department. There was only one more senior post, that of Manufacturing Engineering Manager, of whom there were only two in the factory. Engineers' only other hope was to move into central staff at Dunton or Warley (the model development plant and Ford of Europe headquarters, respectively) but it seemed that few did this. It was also virtually unknown for engineering staff to move into the line hierarchy.

The division within supervision wrought by promotion patterns, and reflected in the above simple data, was given further expression in the comments made in recorded interviews. Some respondents, particularly those who had already gained fairly senior posts, were able to explain away the lack of further progress in their careers, perhaps by reasoning that the senior job was not so very different from their own.

> I am only perhaps a year or two younger than my manager. We both call ourselves young, although we are getting a

bit grey-haired with the job. And I know that promotion within this job is impossible while he is a fit man. And I am not that enthusiastic about taking his job. I am not that ambitious. His job and mine are more or less the same job. (Superintendent, Maintenance MS&B)

For those at junior levels, the self-same tough criteria that had probably been the cause of their being passed over for promotion could serve their need to adjust to the disappointment, although it was difficult for them to remain content with their careers. This respondent, a Maintenance foreman with seven years' service, adopts a 'things have turned out for the best' attitude, and finds in the experience of another man some vindication of his own predicament.

Q: Would you like to be promoted further?
A: Again this can vary tremendously. If you look at the highest supervision, depending on the personality of that individual, you can see the amount of responsibility either making or breaking that individual... Now if I was reasonably sure that I would develop the same attitude of mind in that added responsibility, I would take it. No problem. But whether I would be affected by the added responsibility at present, I don't know. I've got respect for a certain person on the shop floor who was Press Shop superintendent on the production side. He did find that the job was too much for him, and he requested to go back to a general foreman and the request was granted. I've actually seen this chap to-day, that's what brought it to mind. He called in to say good-bye, because he is actually retiring through ill health. Now, whether his ill health was actually caused through the problems he had, I don't know. But this man is now fifty-odd, which tends to put you off, because you think - well! I read in one of the magazines - the Ford pension

handbook - that the average retiring age of supervisory foremen is in the region of forty-five... This was quite a shock. It means I've got roughly thirteen or fourteen years to look forward to. I told the wife, she'd be very rich when I am forty-five. A lot of people don't take any notice of these.. I don't personally, it's just in passing. But it does give food for thought. It's embarrassing to have a Ford staff sickness benefit - or a death penalty society - when everybody is drawing on it.

On the other hand, some who had remained at the same level for several years openly confessed their disappointment and that the job was getting on top of them.

I've been qualified and I've known him (respondent's boss) since he was an operator and I was a foreman, and I suppose I could feel a bit wrangled about that. I do, in fact, but not because it is him. Things haven't worked out very well for me. Perhaps it's because I'm no good, I don't know.

Q: How long have you been in a supervisory job?
A: Since 1962. Started in 1962, supervisor in 1963 and now it's 1970.
Q: And do you see much future in the Ford Motor Company?
A: On occasions, yes. On a number of occasions, no. You tend to become very frustrated at times, and at times you come to work and you think, my God, I'll be the only one there again. This is the sort of mood I can't take. I think you get tied up with the job so much that when you go out of the gate at the end of the shift you have still got it with you... A few years ago, I used to take an awful lot of problems home. Not necessarily to speak of them to my wife, but brood and have a heavy cloud over me. And late shift - this is the shift that drives you really potty... I go home from here at half past ten at night

> and I sit up, have a bit of supper until the television ends, and my wife is crying out for a bit of sleep. So I go to bed and I'll lie there until possibly two o'clock in the morning trying to blot out Ford Motor Company and the problems that I have... But I am getting out of the habit now. As I say, night shift doesn't bother me.

Quotations like these show how various pressures from work and the need for self-respect combine and amplify one another when people grow old in the job - the 'long arm of work' with a vengeance.

In sum, promotion at Halewood, as ever, was not a bottleneck where everyone queued patiently for their turn to come. Some got through relatively quickly and went on to attempt the higher barriers, while others experienced varying degrees of failure, never managing to get very far. To be promoted to a foreman's job was to achieve a considerable measure of success, but other problems were only just beginning. Stuck for many years, perhaps the whole of a working lifetime, in the lower reaches of the hierarchy, people experienced a sense of failure that intensified the pressures of work to which all were subject. And in a hierarchy, where examples of success were ever-present, the psychological pressures brought to bear on those who did fail to obtain promotion were very real indeed.

(b) The Selection of Skills

In the previous chapter we examined the crucial role played by production supervisors in reproducing at the point of production what was a highly coherent system of beliefs, yet one engendering resistance. Indeed, their own colleagues in the supervisory structure, the service supervisors and engineers, seemed to come under more direct pressure from production supervisors than workers, who were in large part controlled by the assembly line technology. Given this pattern of interaction and the hegemony of production goals, an obvious conclusion to draw is that production men will be favoured for promotion. And, indeed, this was the strategy adopted in the company.

In addition to being able to swim with the stream of the organisation's culture, production supervisors received the much more tangible reward of promotion. Perhaps the most marked feature of the promotion pattern was that line management coincided almost exclusively with production management. The command chain, clearly defined in the organisation structure (Figure 4.1), sprang from the production departments, with service and engineering departments abutting onto it. The intermediate levels between department and plant management - general superintendent, shift manager and production manager - marked the line of advance, and although few of them trod it, only production supervisors stood any real chance of taking this path to the top levels of plant management.

The production departments were the public schools of the organisation. Many senior managers had started in the company as production foremen, and a lot of kudos was attached to having risen from the shop floor in this way. The Operations Manager himself like to cultivate the little romance that he knew how to do many of the jobs on the shop

floor. Senior managerial positions were mostly occupied by people socialised into production. Although it was part of senior management's job to bring pressure to bear on shop floor supervisors and the supervisors withheld approval of some of senior management's actions, a natural bond existed between the two groups. Production supervisors, we saw, were much more active in their espousal of organisational goals than other groups, for the simple reason that shop floor production targets and plant level objectives were fundamentally the same.

People were brought into the line hierarchy from service departments relatively infrequently, and from engineering departments hardly ever. The service supervisors' and engineers" promotion was in the main confined to their own areas, and therefore increasingly likely to become blocked once past the first levels. This quality engineer, for instance, expressed his resentment of production men who obtain promotion without possessing formal qualifications, merely because they coincide in their interests with the senior levels.

> People who get to higher positions are not qualified to hold them... I'd like to see managers trained as managers. You see, I trained in this company as a materials analysis inspector - a skilled inspector - seven years. And within nine months I was on the staff, and within another ten months I was a senior engineer and have been there since. And I'm quite happy to stay where I am - I couldn't care less. But in that time I've been on the staff - six years, say - I have been on more management development courses... But I never see managers going on that kind of thing... Everybody seems to have the same priority - being on the job to see that the motor cars go out the gates.

Implied in this process of selection is the preferment of certain kinds of skills and the relegation of others to an

inferior position. Technicians and tradesmen in departments like Maintenance and Tooling possessed skills upon which production were heavily dependent. Only the industrial engineers could sanction the use of excess labour, a deviation had to be signed for by a process engineer before production could use it, the crucial Press Shop was wholly dependent on its toolroom and process services, and so on. But this dependence conferred little autonomy or influence upon these groups.

The status of staff groups at Halewood showed that at bottom it was not in the possession of skills that influence lay, but the control of skills. Control was achieved when a particular range of abilities became established as general skills, the monopoly of the line hierarchy, and instrumental in coordinating other specialist skills. The expertise of groups who contributed to production but were not in control of it were used to simplify the administration of production. Their skills were 'plugged in' when some problem arose, and their competence meant that they could be held responsible for its resolution. They rationalised production's task by absorbing certain kinds of contingencies, but always on production's terms. Because their skills were contained in this way, specialists were not made influential as a result of their responsibilities. The company could both recognise competence and maintain its control of professional and time-served occupations.

Thus, notions stressing dependence on purely technical skills do not by themselves determine the distribution of power. Production's dependence on services and engineers only conferred upon the latter a negative power. It could be exercised by withholding cooperation, but this only within strict limits. By contrast, production managers and supervisors administered control of the workforce and were responsible for costs and volume of output, the central purposes of the organisation.

8.3 INTER-PERSONAL ORIENTATIONS

A factor reflecting several of the major features of organisational control so far discussed - the pre-eminence of production goals, the behaviour and status of production supervisors - was the marked personality types that differentiated the groups in the sample. One received a very clear impression of production supervisors as a tough group of men, always concerned with completing the job in hand. In contrast, the engineers had more time to reflect on their work and seemed less abrasive in their personal relationships, while supervisors in the service departments seemed to occupy a place in between these extremes.[5]

For instance, arranging for interviews with the engineers was relatively easy. They could be contacted fairly readily, and would often go out of their way to help the researcher fix up interviews with their colleagues. Arranging for interviews with the service supervisors was less easy, although made easier than it otherwise would have been because these men tended to congregate at the shop floor departmental office at certain times, and because their areas could be left for periods at a time. But in Production it was most difficult to try to fit interviews into the work routine. Superintendents were mostly reluctant to see a foreman leave his area unattended for any period (often a superintendent's response to a request to release half a dozen foremen for interviews was to stresswhat this might mean in lost jobs). These were the only cases in which it was occasionally necessary to come back on nights to complete interviews in a department.

Lawrence and Lorsch (1969) used a test to measure what they referred to as 'inter-personal orientation', which had originally been developed by Fiedler (1967). This test - the 'preferred co-worker test' - measures the extent to which a respondent's feelings about another person depend on the effectiveness of that person in the capacity of co-worker.

In the version of the test used in this research (Appendix C: xii and xiii) respondents were asked to distinguish between the person with whom, in their experience, they were able to work least well and the person with whom they were able to work most well, on a series of scales - friendly or unfriendly, reliable or unreliable, cheerful or gloomy etc. The profiles of the most- and least-preferred co-workers, obtained from this procedure, were then compared using a standard profile-difference coefficient, the D-score.[6]

Before going on to examine the results, the measure itself requires some discussion to enable us to understand exactly what responses to it mean. Lawrence and Lorsch used the test to distinguish inter-personal traits they called 'task orientation' from those they referred to as 'relationship orientation'.

> ... members of different departments would find it necessary, if they were to be effective, to develop different interpersonal orientations related to the nature of their task... To measure interpersonal orientations we used a standard paper-and-pencil instrument which indicates a person's preference for relationship-oreinted or task-oriented interactions.
>
> (1969: 33)

The problem with this interpretation lies in treating 'task' and 'relationship' as poles of a dimension. Quite often this will be the case, but there well may be jobs which demand a 'relationship orientation' in order to perform the task well. Similarly, test scores are likely to be influenced by the degree of importance assumed by colleagues in any particular job. If they are important, then a score indicating that respondents differentiate sharply between most- and least-preferred co-workers probably does mean that respondents are task-oriented, while a score which indicates that respondents thought co-workers to be alike probably indicates a relationship-orientation. But if jobs which do not depend

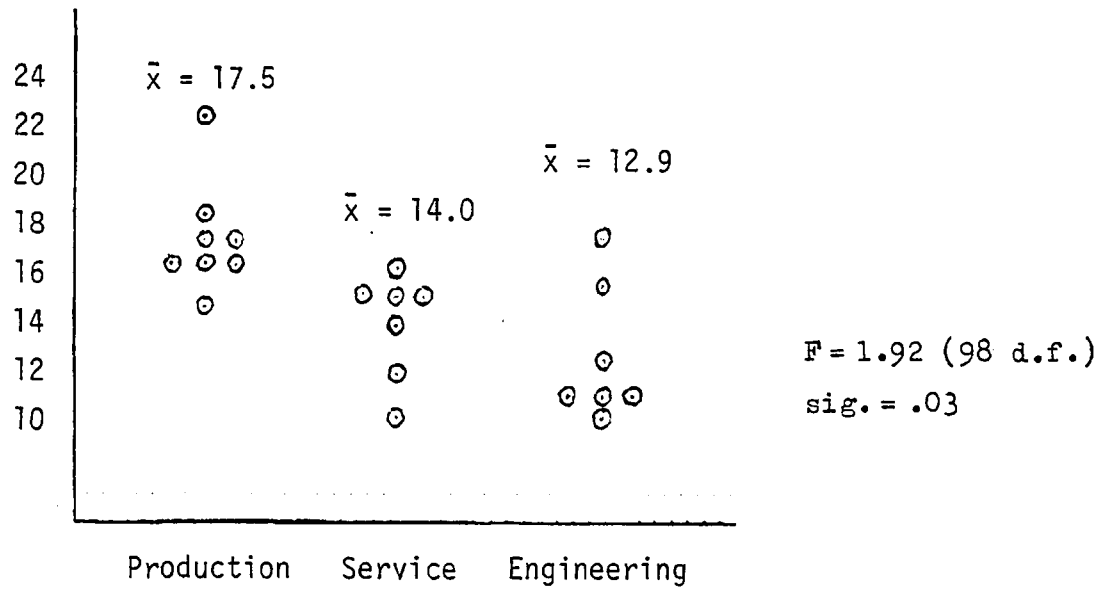
upon co-workers are included, then the interpretation must change. With a sample including such variation in tasks (our own included), the test also indicates the extent to which relationships with co-workers are important for performance, and may say little about job motivation.[7]

Fiedler's original interpretation of his test was somewhat different from that adopted by Lawrence and Lorsch. For Feidler, the test distinguished 'tough minded' from 'tender minded' inter-personal styles. He used it as an indicator of leadership styles when examining their effectiveness under different circumstances. The 'tough minded' leader adopted an authoritarian personal style, was mainly concerned with task-achievement and was insensitive to the feelings and wishes of his subordinates. By contrast, the 'tender minded' leader, although not always less interested in task performance, was preoccupied with the maintenance of social relationships in the subordinate group.

Thus, the preferred co-worker test seems to indicate at least two aspects of personality, one relating to lateral relationships with colleagues and another primarily to hierarchical relationships with subordinates. A respondent who depends on others to do his job is likely to be critical of their co-operation and to distinguish sharply on the preferred co-worker test. Similarly, the extent to which a respondent adopts a tough, uncompromising approach in dealings with others, particularly subordinates, is also likely to be reflected in a high D-score.

Figure 8.2 below shows the mean D-scores for individual departments in the Halewood sample, and scores grouped by the three functions, production, service and engineering. A high

FIGURE 8.2 Inter-personal Orientations



D-score indicates that respondents distinguished sharply between people with whom they can work most and least well; a low D-score indicates that respondents stressed the similarities between their most and least preferred co-workers.

On the scale used, the highest possible score would be 28.9 and the lowest possible score zero.[8] In fact, the lowest departmental mean score recorded was 10.5, with an overall mean for the sample of 15.0. Thus respondents were not, on the whole, indifferent to the abilities of the people with whom they worked. Moreover, the breakdown by departmental groupings shows a clear connexion between the division of labour and test response. Production supervisors recorded higher D-scores than service supervisors, who in turn recorded higher scores than the engineering staff. In addition, the significant between-group versus within-group variance (the F-coefficient) indicates that perceptions within departments were relatively homogeneous.

The scores of some individual departments fell outside the main clusters of their functional grouping. In most cases there was no apparent reason for these 'deviant' scores, but in one case an explanation suggested itself which is worth commenting upon. The two engineering departments with highest scores in their group were two of the three Process Engineering departments. It has already been mentioned that process engineers were close to the pressures of production - more so than any of the other engineers, and more so in some respects than the service supervisors, so it is interesting to see this reflected in their inter-personal attitudes.

It was production supervisors who were most deeply immersed in the problems of working with others, particularly the services and engineers. When this was combined with pressure on them to achieve output targets, it was not surprising that they were sensitive to the abilities of people upon whom they depended. In production, high D-scores indicated the importance of co-operation from others, as well as the general significance of an unyielding approach to the labour force. At the other end of the scale, the engineers were much more dependent on their own efforts, and had no output targets to meet. They could be freer in their attitudes towards those with whom they worked - indeed, these people were often other engineers, both from within the plant and from central staff. Service supervisors came in between these two extremes. They were not overly dependent, since they provided services. But they did depend on production for co-operation - for example, to inform them of the condition of machinery, of parts shortages, in implementing quality checks - and most service supervisors worked in production areas in close contact with production supervision.

Although workers were not supervisors' co-workers,

relationships with workers may also account for some of the variance in D-scores. Production supervisors depended very much upon co-operation from workers, some of the major uncertainties in their job coming from this source. However, the engineers did not supervise workers at all, while service supervisors were responsible for smaller numbers of workers than were production supervisors, and in some cases supervised workers, such as tradesmen and drivers, who probably needed less direct supervision than that imposed upon production workers.

Thus, the inter-personal relationships typical of the three groups of departments involved markedly different work, and these in turn were reflected in a close fit between job and personality. Such pronounced personality differences as are indicated in the data in Figure 8.2 suggest the existence of a distinct process of selection - and perhaps self-selection - to jobs in the three functional groups of departments, as well as subsequent reinforcement of differences once the job was occupied.

Interestingly, there was no significant relationship between inter-personal orientation and level in the hierarchy. One might have expected the selection process that was reflected in departmental scores to influence the selection of those in the senior ranks within departments as well - the more so since the preferred co-worker test was originally developed by Fiedler to be an indicator of the traits of leadership effectiveness. According to Fiedler, leaders most effective in the sorts of conditions prevailing at Halewood - i.e. a fairly routine task with specific objectives - should record high D-scores, being relatively 'tough minded'.

Halewood supervisors did not bear out this hypothesis.

If we assume the senior ranks to be 'better leaders', in the work conditions of Halewood this should, according to Fiedler, go with increased 'tough mindedness' and a relatively high D-score. However, the scores recorded by foremen, although not significantly different, were actually slightly higher than those of more senior ranks. Taking only production and service supervisors, D-scores at each level were:

Foremen: 15.7 General Foremen: 14.6 Superintendents: 15.3

One possible conclusion to be drawn is that senior plant managers, who controlled promotion, were poor judges of ability; such that those selected for promotion were not necessarily the most capable. Indeed, in section 8.1 we saw that in as many as one-third of departments junior supervisors were unimpressed by their superintendent's abilities. Whatever the truth of this, the foremen working on the shop floor well may have become a little more 'tough minded' than even the departmental superintendents. However, the absense of significant variation between hierarchical levels in terms of their D-scores may merely mean that this indicator did not detect whatever 'leadership' traits, if any, were possessed by the senior ranks in departments. Relationships with colleagues and subordinates appeared to become no more or less critical or difficult to manage in supervisors' progress up the hierarchy.

8.4 MIDDLE CLASS MANAGEMENT?

The class position of a group like supervision is an issue that raises some intriguing questions. Literature on the topic has invariably taken its point of departure to be the supposedly ambiguous class position and role of supervisors. While it is recognised that the capability of such groups to retain their relative privileges over manual workers often holds up remarkably strongly, it is also stressed that other trends are at work undermining differentials. Since the inter-war years, it is suggested, supervisors' authority in the firm and their market position have declined, leaving them in a much more doubtful position in the class structure than was the case formerly. The supervisor's chances of promotion are often slight, his pay perhaps only marginally above that of the people he is in charge of, and his work increasingly similar to theirs. And whether or not white collar unionisation indicates the 'proletarianisation' of these occupations, increased collectivisation of groups like supervisors, it is suggested, has been brought about by a decline in the job's market strength.[9]

Halewood's foremen, we noted in Chapter 4, ostensibly performed the 'functions of capital', yet a careful consideration of their work revealed only a thin line separating their function of co-ordination from that of productive labour itself. Their task of overseeing the jobs of workers occupied a significant part of foremen's time, but the role of direct supervision tended to be confined to mopping up problems the systems of technology and production control had failed to deal with. Foremen also had much to do that did not immediately involve manual workers. Whether or not getting new assemblies through quality checks, chasing around the plant to lay on services and keeping bosses informed of shop floor developments count as productive labour is a debatable point. But these were

activities which produced in foremen the reaction of wanting to get on with their own jobs, while workers got on with theirs.

The present study is not directly concerned with the question of class. We have neither the data for an analysis of supervisors' place in relations of production, nor for an analysis of their position within distributive relations, nor do we have data on supervisors' perceptions of their class position and class allegiance. None the less, there is an aspect of this question which, though peripheral, our research does provide some insights into. This is the notion that organisations select for entry into senior management the 'middle class' elements within a body of junior managers.

Although evidence of such a pattern of selection is rarely adduced, one encounters the hypothesis as a confident assertion quite frequently in the literature. Thus, in section 8.1 we noted Dunkerley's (1975) claim that foremen are encouraged to occupy the 'middle class end of the continuum', because the social and cultural patterns of organisations spring from these norms. Similarly, Salaman (1979: 128) argued that dominant organisational cultures tend to favour the 'reliability and responsibility of educated, middle class organisational recruits'. Presthus (1978) claimed that the criteria of selection in organisations reflect those in the wider class structure:

> Success now requires extended university training, and such training is the prerogative of middle-class families who employ child-rearing practices that give their children the inside track by emphasising striving, punctuality and the suppression of unprofitable emotions... As a result, those who possess these attributes assume power and tend to replace themselves with men who reflect their own image. In such a way the socialisation process is tuned to the needs of modern society. (Quoted in Salaman, 1979: 196)

And Blauner (1964) remarked that in the new technologies, the norms of the 'new middle class' reach down even into the work force:

> Generally luke-warm to unions and loyal to his employer, the blue-collar employee in the continuous-process industries may be a worker 'organisation man' in the making. (1964: 181)[10]

Of course, the extent to which organisations seek middle class people for senior office partially depends on the kind of organisation being considered. Such a pattern of selection is probably fairly true of state and private white collar bureaucracy, while the prospect of mobility is probably more real in industrial bureaucracy.[11] Similarly, it is well known that the British army draws its officers mostly from the upper socio-economic classes, while in the navy and air-force, where technical skills play a larger part, class is a far less prominent criterion of selection (see Ch. 3, Note 8).

Even so, it is clear that the writers just quoted do include industrial organisations in the hypothesis. Such statements take their cue from the broader process of the bureaucratisation of work. The increasing tendency of formally rational patterns to prevail in organisations, it is suggested, imposes a middle class character on management: property is inherited rather than accumulated by entrepreneurs; the social origins of the business elite are increasingly to be found within middle class occupations; extended education becomes a necessary qualification for entry into a business career; and careers themselves provide slow, predictable progress through finely differentiated hierarchies (Bendix, 1956: 239; Salaman, 1979: 195).

The selection of middle class characteristics, then, refers as much to the choice of personal qualities bred in the rational, calculative world of corporate management

as to the class action and consumption patterns of management. It is on the former that our data may be brought to bear. Although we are not able to examine in detail the degree to which Halewood's supervisors conveyed a 'middle class' image, except by reference to circumstantial evidence, we do have an understanding of the kinds of people they were and the sort of behaviour they adopted.

Promotion in Halewood provided a somewhat less than assured transformation to formally rational ways. When men entered line management at the lowest level and put in long service under shop floor conditions, they became socialised into ways of thinking and behaving that gave them none of the polish necessary for advancement to senior posts. Of course, the extent of the disruption to formal authority must be qualified. The claim made by Sayles with his notion of the 'stabilising group', referred to earlier, namely that people invariably respond to their own sectional goals and so cannot be trusted with decisions that call for a broader sympathy, doesn't always hold true. Where sectional output goals were placed far higher in importance than 'wider plant objectives' (section 6.2[a]), we did see cost and production controls governing perceptions very rigidly. But in other circumstances, where perhaps the 'wider objectives' had a concrete relevence, people in the line were able to perceive the reasons behind the conflicting demands on them and to strike some sort of balance. For example, this production superintendent relates a story which for him illustrates both the problems involved in his job and the need to come down on the side of common sense.

> At one time, there was a lot less red tape as regards controlling the labour - in the early days before the unions themselves were organised... Since then it is

a lot more difficult to control things as you would like to. I can only give you this as an example: a general foreman witnessed a production operator knock over a stack of panels and then go over with his hob-nailed boots and deliberately damage these panels, kick them in a temper. The foreman catches him doing it and is fortunate enough to have a witness with him, and the thing goes through procedure - Personnel. In any other firm - a small firm - the fellow would have had his hat and coat on and been out of the plant. But in an organisation like this you can't do that because you know that if a bloke goes out the plant the whole plant will stop... The Convenor himself summed it up very wisely. I said afterwards, 'You let me down. You shouldn't have fought so very hard for these blokes.' He said, 'If you are going to employ people, young boys, you must expect a bit of indiscipline from them. You were probably bad when you were an apprentice. Think back to those days.' This is right. In other words, if you haven't got the work for the lad, continually working, continually being supplied, they are bound to get up to mischief. Probably we are viewed by others as being soft, a bit weak, in this firm. But there is too much at stake.

Just as any failure of line supervisors and managers to effect a smooth transition into the corporate group needs to be qualified, so the degree of consensus and extent to which a measured approach to problems was adopted within corporate management, suggested by the term 'middle class management', should not be overstated. Certainly, at the plant level managers were still capable of the uncouth or merely ideosyncratic behaviour that would go unnoticed on the shop floor. A telling demonstration of this fact, again involving an industrial rélations incident, occurred during a Christmas convention the company had put on for its supervisors. In his speech to the meeting, the Industrial Relations Manager, one of the three

most senior people in the plant, adopted a strongly confrontational line, detailing the 'troublemakers' who had been disciplined in the past year, and promising that in the coming period the company would be prepared to take on militants. Perhaps his department had been criticised for being too soft, or perhaps he felt that supervisors needed reassurance. Whatever the reason, it was an extraordinary outburst and received with embarrassment by many in the audience. Such inflammatory statements were bound to have got back to the shop stewards, but in any case several were in the hall, invited to the convention as a courtesy. It was apparent that the Operations Manager was angry about the content of the speech, and in his subsequent speech he went to great lengths to put the alternative policy, stressing the company's desire for harmony with the unions and that it welcomed a responsibility to provide employment in the region.

Having made this qualification, however, it remained true that production demanded and developed qualities at variance with 'middle class' behaviour, whatever precisely might be meant by the term. One clear indicator of this involved the inappropriateness of education - perhaps the single most important component of middle class consumption patterns - in the tough world of production supervision. In the mid-1960s, the company had started a programme to recruit university graduates into production supervision, starting them off as trainee foremen at Dagenham. The proclaimed purpose - a classic application of the personnel management approach - was to improve the 'quality of supervision' and to provide for more effective 'man management'. In the event, recruits mostly proved quite unable to cope with shop floor conditions, and became dissatisfied with the careers they saw unfolding. After about a year, the company called a halt and transferred the graduates to the conventional management training programme.

Secondly, respondents' attitudes to 'paperwork' provided more evidence of the anti-bureaucratic imperatives of production. It was regarded by many of them as far too excessive, and they distinguished sharply between paperwork and 'actual production'. The advent of Ford of Europe apparently had greatly increased the amount of paper that circulated in Halewood. Similarly, meetings always generated demands for reports on current projects and trouble-spots, which meant that supervisors had to chase up the necessary information. Superintendents in particular were reportedly 'so bogged down with paperwork and meetings that they haven't got time to do their jobs.' In this we see the priorities of the shop floor reaching out and disrupting the roles of senior supervisors.

Perhaps the most extreme form of the disjunction between operational requirements and those of administrative authority lay in an underlying thread of violence that reflected the tough world of production. It is possible to draw out with an anecdote something of what we mean here. During the period of the research, an American plant manager who had recently retired joined Halewood for a limited period as a 'trouble-shooter'. It was rumoured that, in the 1930s, this man had been part of the company's private army that had terrorised trade unionists then trying to organise the work force in Ford's American plants.[12] Even if untrue, it was nevertheless significant that this should be believed by Halewood's managers, and says something of the way they perceived the company. One manager put it that promotion had been this man's express reward for the part he played in this early violence.

While such extreme incidents did not characterise supervision, they drew the margins of substantive patterns generated by the production consensus. Because it was an operation necessitating control of the interface between a

large labour force and a highly constraining production technology, Halewood produced a middle management who weren't trained solely in formally rational patterns nor wholly fit for the rarified atmosphere of the corporate group. This was not the featureless world of the 'organisation man'

What is important here is accurately to draw the line between industry and bureaucracy. Sociologists who lump together all managements as 'middle class' fail to recognise that while industry has indeed become increasingly bureaucratic, the imperatives of production can still go some way towards sustaining a substantive rationality. In true bureaucratic work, status differences are highly visible and social elements play a large part in interaction. In the isolated world of the office, and doing the abstract work of circulating files, career anxieties can multiply. This contrasts with industry, where concrete, time-consuming activity (a better example of which than producing cars could hardly be found) tends to prevent people from becoming too preoccupied with their security of employment. True, people are to a degree concerned with their careers, as we have shown to be the case in Halewood, but in an important sense in *industrial bureaucracy* the work takes first place.[13]

8.5 CONCLUSION

The connexion between the selective closure of the path into top management and the maintenance of organisational control was varyingly reflected in our research materials. Firstly, service and age patterns of the representative

sample indicated a division between the longer-serving foremen and those who won promotion relatively quickly. General foremen were mostly drawn from the former group, while the departmental heads came from the latter category of foremen. This evidence of early selection and rejection reflected the difference between bureaucratic order existing in the 'strong' sense of a corporate group, and order in the 'weak' sense of members who merely acknowledge bureaucratic rules.

Secondly, in the fact of promotion to senior line management being restricted to production supervision lay an obvious link with the definition of the plant's central goal as that of production. Admission of production personnel to senior rank conferred the authority of the corporate group upon a body of people socialised into and motivated by production goals, a mechanism which served to select carriers of particular goals and to place them in the position to transform these into central organisational purposes.

Thirdly, the functional division within supervision strongly influenced the distribution of personality-types, while level in the hierarchy had no such effect. Here, it was the nature of supervisors' work that singled out those 'tough-minded' personalities who would eventually find their way into plant management.

Although the promotion policy was strictly applied and was hard on those competing for higher posts, one finding pursuasively indicated that, within departments, the policy may not have been overly successful in its operation. Junior supervisors in as many as one-third of departments held poor opinions of their superintendents. Also, reports of peopel who had not been able to cope with a promotion and had dropped back to

their original job were by no means uncommon. Given the exacting conditions under which superintendents had to work, there simply may not have been sufficient men in the plant able to fill the posts. However, in addition to these difficulties, there was also the suggestion of a general problem of selection with which industrial organisations particularly have to contend. While the task of senior managers controlling promotion is made relatively predictable when compared with that of inducting new employees, since performance on the job can be taken into account, job performance itself encapsulates many abilities which may be irrelevent to, or even conflict with, the demands of top level administration.

It seemed likely that a plant such as Halewood presented this difficulty in as extreme a form as it would ever appear. In the motor industry, promotion from within is an almost universal practice and Ford is no exception. But while the practice fitted senior management with a solid technical background, it created the potential for conflict between skills useful at a given level and those, perhaps different abilities required at the higher level. The company's promotion policy recognised the problem, since it was geared to the selection of people who were 'promotable' rather than those who merely performed well in their present jobs - itself no easy thing to measure. However, such an emphasis still left unresolved the problem of having to select what were probably unrepresentative abilities, and meant that guesswork and intuition had to be relied upon in the operation of promotion policies.

Despite these 'substantive irruptions' in the smooth-running of the selection process, its chief purposes were clearly achieved. Differences in personality were polarised into distinct streams of career chances, by and large promotion

was conferred on those who would bear the particular beliefs of the production consensus and the consensus itself continued to be reproduced.

NOTES

1. Hierarchical levels provided few differences on the goal items. They showed no relationship with the inward- versus outward-oriented objectives, save for an unexplained tendency for heads of department to be less satisfied with their performance being judged by the department's performance. Heads of department felt that they encountered a little more 'risk' in their jobs (i.e. a higher occurrence of routine contingencies), but the difference was not significant and the other dimensions, frequency of contingencies and uncertainty, gave rise to no differencies at all. Time orientations were just significantly different for the three levels, with the foremen spending most time on the 'minute by minute demands' and least time on 'long range planning' and vice-versa for superintendents. D-scores provided no significant differences, though there was a perceptible tendency for supervisors at the lower levels, who deal directly with workers, to be more 'tough minded'. And lastly, hierarchical level was the basis of no difference in the responses to sources of respondents' judgements of their performance.

2. See, e.g., Gallie (1978:134-44).

3. Comments used here are not taken from the first interviewed sample, but were recorded when respondents answered these questions on departmental influence. This means, incidentally,

that the comments cannot be taken as independent evidence of the validity of departmental influence distributions. They are used only to illustrate what the distributions meant for respondents.

4. For example, at one point during the research, a German manager was appointed as assistant to the Operations Manager at Halewood, in a newly created post. In effect the company had put this man on trial, to see if he could create a job that didn't exist, and he had to accomplish it simply by force of personality. He would attend meetings where he had no real function, and intervene in the running of departments where he had little authority. In the Personnel department (from where the research group worked), he had earned the nickname, 'the fascist', the one with 'swastikas stamped on his forehead', which gives some idea of the personal style he had had to adopt.

5. Woodward supports this point when she talks about the personalities of senior managers in production firms:

> ... where efforts were continuously being made to push back the physical limits of production, senior executives seemed to have more drive and push and to be more ambitious than their counterparts in unit production or process production. (1965:80)

6. In the version of Fiedler's test used here, respondents were presented with two identical sets of 17 eight-point affectivity scales measuring traits such as unpleasant versus pleasant, unfriendly versus friendly etc. On one set of scales, they were asked to judge the person with whom they could work least well (their least preferred co-worker - LPC) and on the other to judge the person with whom they could work best (their most preferred co-worker - MPC). This provided two

profiles for each respondent. The similarity between profiles was the measure of the psychological trait. Fiedler referred to this measure as the 'assumed similarity between opposites' score - the AsO. The 'opposites' in question were respondents' LPCs and MPCs.

Respondents with a low AsO score perceive a small similarity between their LPC and MPC, and are likely to be 'tough minded' and highly task-oriented. In practice, they will take a critical attitude towards their least preferred co-worker on personal grounds - he is unpleasant unhelpful, unfriendly etc. Conversely, a high AsO score means that a respondent is not distinguishing between LPC and MPC, and hence is not judging personality on the basis of effectiveness as a co-worker. In this case, respondents are more likely to be 'tender minded' and person-oriented.

In the present case, scales were modified slightly from Fiedler's originals, and words that might have been unfamiliar to our respondents were changed. In addition, as Fiedler provided no statistical detail, a measure of profile dissimilarity was used in place of the AsO score. This was the D-score, a statistic developed by Cronbach and Gleser (1953). These researchers considered a variety of measures of pattern similarity and dissimilarity, and concluded that the D-score was the most generally applicable. Its formula is given:

$$D = \sqrt{\Sigma(MPC_n - LPC_n)^2}$$

where 'n' indicates the series of affectivity variables. Since D is a dissimilarity score, a high value will indicate task-centredness or 'tough mindedness' and a low value person-centredness or 'tender mindedness' (i.e. the reverse of the AsO score).

7. Lawrence and Lorsch (1969:36) found that sales staff were the most 'relationship-oriented' of the comprehensive sample

of managers they interviewed. They explained this finding in terms of the concern of salesmen for customer relations, and for 'fostering positive social relations among co-workers'. However, under Lawrence and Lorsch's interpretation of this indicator, a high relationship-orientation score automatically means a low task orientation score, since the two conditions form opposite poles of a continuum. Yet it is hard to see why salesmen should be least task-oriented, given their popular image and the fact that frequently a large part of their salaries is commission. A better interpretation may be that salesmen, who usually work alone, find co-workers less relevent than do other managers for performance in their jobs. In their case, a low D-score may indicate a lack of relevence of relationships for task-orientation.

8. It will be seen from the above formula (Note 6) that the eight-point scale and 17 variables used in the present research result in a highest possible score when LPC and MPC are consistently scored at opposite ends of the scale. Then:

$$D = \sqrt{(8 - 1)^2 \cdot 17}$$
$$= \sqrt{833}$$
$$= 28.9$$

The lowest possible score occurs when LPC and MPC are consistently the same, and is zero.

9. See Child, Pearce and King (1980) and Littler (1978).

10. For a summary of studies stressing the recruitment of managers according to 'middle class' criteria, see Watson (1980: 202ff.).

11. Data from the Oxford Mobility Project show that industrial

management is the only significant channel of upward mobility into Class I occupations, that is independent of education and social origins. See Heath (1981).

12. For an account of this period in the company's history, see Beynon (1973), Ch. 1.

13. See Berger and Berger (1978).

Chapter 9

CONCLUSIONS

The research developed a dual focus. We began by testing a model of behaviour aimed at predicting the characteristics of lateral organisational interaction. But the unexpected results of analysis led first to a critique of the model, and subsequently to the search for another analytical framework, one able to account for the findings and within which to re-locate research materials. The control paradigm provided this framework. Its adoption generated new objectives, namely to examine mechanisms for the control of supervisory activity within the enterprise.

The literature on conflict in management, summarised in Chapter 2, reflects a concern with decision making and conflict resolution in which emphasis falls on the nature and quality of managerial interaction, and on the social processes underlying interaction such as coalition-formation and bargaining. More than anything else, the ascendancy of this paradigm, which was virtually unchallenged orthodoxy until quite recently, led organisation theorists to neglect to ask precisely how representative their theories were. Despite their emphasis on the contingent links between organisation structure and independent factors like technology and environment, few questioned whether the decisions paradigm itself might have a limited application.

Neither has organisation theorists' considerable interest in lateral interaction and conflict in management bodies been matched by attention to empirical verification, for their behavioural models mostly derive plausibility from the decisions paradigm on which they rest. Our project

originally sought to fill this gap in research by examining the causal links between organisational differentiation and conflict. The one major empirical test of the differentiation-conflict hypothesis, conducted by Lawrence and Lorsch (1969), provided measures of some key variables and suggested a research design.

An empirical test based on the network of inter-departmental relationships at Halewood indicated no significant correlations between the dependent and independent variables of the model. In other words, the hypothetical relationship between differentiation and conflict was not sustained by the research. While negative research results are not in themselves less valid than positive ones, there are good practical reasons why negative results are normally of little interest. If a test produces no significant correlations, the research design is naturally called into question; and in any case, haphazardly investigating non-relationships is a pointless exercise. However, in the case at hand negative results did seem worth reporting and trying to explain.

Lawrence and Lorsch's research, we pointed out in Chapter 2, pertained to conflict between divisions of management in direct relationship with one another, where potential existed for face-to-face bargaining. Such possibilities were mostly absent in Halewood, a plant confined to production alone. The kind of interaction upon which Lawrence and Lorsch based their research - between the divisions of marketing, production, original and applied research - were not represented in our samples. In such a setting, work patterns were basically controlled by the prior rationale of the organisation's design. Much potential conflict was mediated both by departments set up solely for that purpose and by groups whose mediating role was an informal one although

still widely recognised, while remaining interaction within management and supervision took the form of pressure for organisational resources of time and expertise, rather than conflict in a process of decision making.

More particularly, conflict as Lawrence and Lorsch defined it had the potential both to disrupt ordered sets of priorities and activities and to create new ones. The question which they used to assess conflict and co-operation (reproduced in Table 2.3) encompassed essentially this meaning when it used the evaluative terms, 'unity' versus 'breakdown' of relationships and 'good relations' versus 'bad relations'. For Lawrence and Lorsch, the notion of conflict was interchangeable with that of lack of integration.

Our results indicated that Halewood's supervisors and production engineers had a different understanding of interdepartmental conflict from that implied in the question. That definition of conflict did not reflect respondents' experience, did not 'model reality' as they saw it. Indeed, the daily concerns of our respondents - the application and avoidance of pressure, the control of workers, preoccupation with output and budget targets - seemed to reflect a different underlying form of organisation from that implicit within the conflict model.

Burns' distinction between 'established' and 'conventional' patterns of organisational activity helped to account for our findings. Flexible, contingent patterns of activity that correspond with Burns' 'conventional' type resemble the patterns of the decisions theory that underpins Lawrence and Lorsch's differentiation-conflict hypothesis. They also assume the basic features of an approach we looked at in Chapter 7, namely Sayles' analysis of

lateral interaction. Our application of Sayles' framework showed that while his categories of lateral relationships were very useful, his account of organisational processes, particularly the suggestion that 'contingency patterns' predominate over 'operational patterns', was at variance with the rigid structure of technical activities at Halewood. Our criticism, both in testing the differentiation-conflict hypothesis and in matching Sayles' framework to Halewood conditions, therefore implied that these models tend to the selective use of empirical materials to make contingency patterns appear more nearly universal than they in fact are.

A continuation of analysis using the original causal model, when its central relationship was not sustained, would have involved emphasis on the method for its own sake, although some conclusions could probably have been drawn. But when it became clear that the model would not furnish the kind of results that were sought, it was decided that additional effort along these lines would be wasted.

If the empirical results had provided the significant correlations expected, the responses to the various measures would have been discussed prior to feeding them into the multivariate analysis. But this method of writing up proved not to be practicable once the negative results of the empirical test were known. It was desirable to come quickly to the point as regards the test results. In any case, the data could be put to alternative use. The radical turn that organisation theory took around the time our research was being written up, discussed in Chapter 3, suggested an alternative framework, and the data from the original measures were now organised and related together in a way that was meaningful in this changed context.

The original research materials still provided the

data base, both because they described important organisational parameters and because lateral relationships remained the most important research focus. But rather than compress the research materials into a causal model, the case study method was used more centrally and materials were woven into a narrative. This involved a detailed account of production control (Chapters 4 and 6) and of supervisory work (Chapter 5). It also meant that in the analysis much closer attention was paid to issues involving structure and process in the Halewood plant itself. Our data on organisational goals can serve to illustrate this point. In the analysis of interview materials, it quickly became apparent that a powerful production goal (which in any case was evident to anyone with the least experience of the plant) was emerging. With emphasis on control, it seemed appropriate that this fact should be made the focus of attention, rather than the analysis involving goal differentiation as originally intended.

The discussion of organisational control in Chapter 3 stressed that while the economic relationships workers and managers bear to the firm are similar in the sense that both groups are employees, their social relationships are quite different. Descending organisational hierarchies, the degree to which control is entrusted to normative restraint decreases. The levels of responsibility and discretion in workers' jobs are obviously far lower than in managers' jobs; and the disciplines workers come under, like work study and work-pacing technology, are predominantly objective and technical, rather than the subjective and social constraints on managers. Still, even the most 'technical' of controls - an assembly line technology

that determines the pace of work is a good example - depends upon workers' acceptance of the employment contract and an agreed 'custom and practice'. Similarly, managerial employees, especially those in the lower ranks and working in highly constraining technologies, come under a mix of controls in which objective constraint can figure prominently.

In Halewood, lower level managerial employees - the supervisors and production engineers in our samples - worked within departments, enforcing production targets and providing direct services. Although their work patterns were nothing like as closely determined by technical controls as those of manual workers, in a very evident sense supervisors and engineers were governed by the very output targets they administered - targets enforced by their bosses above them in the hierarchy, by colleagues who demanded they fulfill their share of an overall task, and by subordinates needing back-up to perform their own jobs. In other words, the nature of the work revealed that Halewood's supervisors and engineers were subject to a mix of controls that intensified their labour, as well as pressed for normative compliance.

Clearly, Halewood resembled Burns' 'established' organisation type. The plant's highly articulated departmental and hierarchical structures allowed little space for alternative conventions to develop, nor allowed conflict arising out of differentiation to challenge the order of work relationships. Indeed, in an organisation like Halewood to seriously challenge prevailing work patterns was to defy the whole structure of managerial legitimacy.

A particular set of objectives, the influence and coherence of which emerged very forcibly during the research, devolved upon the achievement of cost, quality and volume targets. The objectives reflected a 'production consensus'

which embodied the central system of organisational beliefs. The beliefs were an 'imposed consensus', sustained by a complex process of imposition and consent.

The production consensus did more than merely suppress the opposition it itself created. Its legitimacy was recognised. Conflict did not threaten established interaction patterns, nor was it construed in terms of a breakdown of work relationships. Service staff and technical specialists mostly agreed that the direct production goals for which they bore a partial responsibility were more important than their own goals; and although this was in a sense bowing to the inevitable, they also acknowledged in production the plant's breadwinner. Thus, formal authority set the limits of conflict. Groups that were in certain ways alienated from production objectives recognised them as legitimate, and accepted the constraints on their occupations.

None the less, while the established order was hardly contested, people's powerful sense of responsibility to occupational and section goals meant that it was resented and resisted. Both the differentiation of work ethics and the fragmentation of control centres contributed potential causes of conflict. Thus, the limits of legitimacy were most apparent in the informal processes of organisational interaction. When theorising about these informal patterns of behaviour, sociologists have tended to see in them processes that 'dilute or temper' formal constraints. But while it is true in general that some kinds of informal interaction play this part, and that in Halewood formal pressures were resisted and autonomy defended, the ultimate impact of informal interaction in the plant was powerfully to reinforce the structures of formal organisational control.

What was most significant about inter-departmental conflict - what provided the central point of the thesis and formed the link between its twin foci - was that formal constraints were passed on in the medium of lateral interaction Conflict was a key element in the intensification of supervisory work, a kind of 'self control' that could be directly traced to the departmental division of labour and the system of supervision. The heavy demands people in separate departments placed on each other, the resistance that this engendered and the further intensification of pressure that resistance itself brought about meant that supervisors were controlling each other. Thus, a crucial reinforcement of control originated within the body of supervision itself.

In the research, consideration of this fact proved to be a turning point from which conflict ceased to be the prime concept and became a point of departure for examination of the much more fundamental process of control. When lateral interaction was considered in this way, as a control of administrative and professional labour, we saw that it comprised a mix of the 'pure types' of bureaucratic and technical controls to which managers and workers respectively are subject. On the one hand, the effectiveness of lateral interaction rested on supervisors' and engineers' motivation and their acceptance of overall managerial authority. But on the other, interaction was a control emanating from the division of labour, and it was perceived as an objective force for an increased intensity of work.

The other mechanism examined, one of the chief bureaucratic controls, was the selection of appropriate people into positions of authority. Selection left an indelible mark on the plant's personnel. Recruitment of the personality types and the skills upon which organisational authority was based, and the gatekeeping designed to keep the others out was a crucial precondition for a ruling culture of collective experience and common purposes to emerge in the senior levels.

And while implementation of promotion policies was not without its inefficiencies and contradictions, there was clear evidence of the central part played by selection in reproducing the organisation's belief system and authority structure.

Having said this much, it is perhaps obvious that the processes of belief-formation, interaction and selection were intimately connected. For purposes of analysis it was useful to distinguish between them, but in fact they were reciprocally sustaining facets of the total process of organisational control.

In the discussion of beliefs in Chapter 6, it was necessary to take for granted a 'selective tradition' shaping the authority structure. The formation of a central system of beliefs depended upon the preferment for senior posts of people who bore the beliefs, and with few at the top and many at the bottom of the hierarchy it was necessary to promote only those who most closely adhered to the organisation's central normative systems. Beliefs provided a yardstick for selection, and beliefs were subsequently reinforced when bearers were able to use the powers of senior office.

The established production consensus effectively transformed sectional goals into corporate purposes, and people who would otherwise respond only to formal constraints and conflicting occupational orientations shared common understandings. Similarly, authoritative objectives were transformed into operational goals in the process of lateral interaction within the differentiated supervisory body. Formal objectives were narrowed down in an agreed custom and practice, and the terms of relationships between departments - the levels of effort expected and relative status of skills - were continually worked out.

Selection forged a link between lateral interaction and corporate goals that went far to maintain the legitimacy of the production consensus. While it is self-evident that the groups most critical in an organisation will be authoritative, in the selection of skills we found a major element in the reproduction of a particular definition of corporate purpose. The regular promotion of production men into senior management meant that a premium continued to be placed on these skills. Additionally, the authority of production skills enabled production supervisors to represent the beliefs as the organisation's central objective within the supervisory structure. Thus allied to the selection process, conflict between departments became 'authority in the making'.

The critique of the original causal model set out in our research and the suitability of the control perspective in subsequently re-interpreting research materials confront us with related questions of representativity. It is fairly clear that, in a general way, the control paradigm suited an organisation like Halewood, where people were highly constrained by immediate job demands and promotion and skills were painfully acquired. Conversely, it can be argued that such a setting was not an appropriate place in which to test a decisions model. But as we have pointed out, proponents of the decisions approach do not confine it to a particular type of organisation, nor was the differentiation-conflict hypothesis thought to be limited in its applicability to lateral relationships in organisations. Thus, the absence of a correlation between differentiation and conflict, where Lawrence and Lorsch discovered a strong positive one, does suggest that the model is not universal, and that the emphasis on decision making must remain questionable if overly generalised.

But while the control paradigm did seem to offer a useful way in which to conceptualise patterns of activity and orientation in the case of Halewood, there are possible objections to generalising beyond this one plant. Firstly, it is possible to question whether an analysis of organisational activity should be based on a production plant like Halewood at all. Any account of managerial interaction, it can be argued, should include a comprehensive range of decision making, at several levels in the hierarchy and embracing the major specialisms, rather than being confined to a narrow range of functions mostly involving the direct control of human effort. A wider definition of 'the organisation', encompassing the Ford Motor Company or Ford of Britain, would have served to expand the category of higher level managerial jobs - i.e. the kind of 'professional-managerial' occupations that best fit the image projected by decisions theory.

Secondly, there is the problem of generalising to other industries and technologies. In industries where the discipline of serial assembly little affects the continuity of workers' effort, the job of supervision may be very different from that involved in mass production. A technology in which workers regulate their own work or where workers are less critical to production is unlikely to be comparable with Halewood's.

Thirdly, even apart from the limited sample and single technology investigated, it can be argued that Ford is specially unrepresentative of firms. Ford is remarkably successful as a mass producer of cars. It has the reputation of a tough company particularly in industrial relations, and within the motor industry its managers are reckoned to be highly competent. While any relationship between the market success of a company and managerial motivation is obviously very complex, the existence of an

organisational belief system as highly integrated as Halewood's is remarkably consistent with Ford's popular image. The close connection that existed between the plant's production consensus and Ford's record and reputation may further limit the representativity of research findings.

(After the research at Halewood was completed, and still under the auspices of the Industrial Sociology Unit, I attempted to start up a similar study at Chrysler's Ryton plant in Coventry. In spite of showing some interest, the company in the end refused access. But my general impression of Chrysler's production management as compared with Ford's was of a much less tightly controlled and less efficient operation. The relationship between performance and motivation again invites comment, Chrysler being a far less successful company than Ford. It would have been interesting to see if the single-minded attitude towards production that emerged so clearly at Halewood existed at Ryton, and my feeling was that it would not.)

Whether the pressure of work and consensus of beliefs found at Halewood would be evident in a different organisational setting, and if they were not whether this would undermine the conclusions of our research, are difficult questions to answer conclusively. But organisational contexts in which lateral interaction might be considered an isolated process surely are far from universal. For all the growth in advanced sector occupations, basic industries like motor car manufacture remain massive employers, and many managerial employees continue to work within technologies that, like Halewood's, are highly constraining. Similarly, the centralisation of functions represented by Halewood's place

in Ford's European production operation is a common divisional structure in large companies. Thus, while the picture of supervision we painted - whereby supervisors and production engineers came under mechanisms of control stemming from the division of labour, in addition to bureaucratic control involving selective closure of the path into corporate management - is not intended to be representative, it indicates the intensification of effort likely to prevail in economic enterprises where managerial, supervisory and professional employees contribute directly to productive labour.

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APPENDIX A

INTERVIEW SCHEDULE

EXPLORATORY SESSION

1. Respondent's Job

Full title of respondent's job.
Who does he report to?
How many people report to him?

Content of his work: Account of what he does in the course of a normal day's work.
(Probe: Run through what he does on an hour by hour basis.)

Are there any parts of his job he dislikes doing?
What are the obstacles he encounters in the course of his work?

2. General Work Organization

Ask for an account of the organization of work in the plant.
(Probe: What stages does a car go through before it comes off the end of the line?)
What are the connections between the two plants - MS & B and PTA?
What is the role of the selectivity areas?

3. Task Uncertainty

Is respondent able to organize his work in the way he wants to?
Do unexpected things crop up in his job?
(Probe: Things that make him stop to think/things he did not think he would have to tackle in the normal course of events.)

Instances of new techniques/processes/changes brought in without respondent being sufficiently informed.
Training received on new processes/equipment.

Any parts of respondent's job he does not understand?

4. Work Pressure

In general, does respondent rate his work pressure as high/low/about right?
What are the main sources of pressure in his work?
How efficiently are they dealt with?

For these sources of pressure ask (i) is it a major source of pressure, and (ii) how efficiently is it being dealt with?
- schedule changes
- deviations (from process)
- shift changeover (work in system from previous shift)
- budget control
- meeting quality targets
- poor services (any particular service/is it the fault of the department concerned?/respondent's overall rating of services)
- meeting schedules

For these sources of pressure ask: (i) is it a major source of pressure, and (ii) how efficiently is it being dealt with?
- absenteeism
- lateness
- labour turnover
- quality of labour

How much pressure comes from paperwork?

5. Relationships with Hierarchy

Personal relationship with immediate boss.
Friendly relationship or purely working relationship.
Does boss support respondent?
Does boss keep respondent well informed?
Can respondent influence his boss' decisions?

6. Interdepartmental Relationships

Which are the departments respondent deals with mainly?
Does respondent have to see supervisors from other departments to complain that that department is not doing its job properly?
How often?/which departments?

Does respondent need help from other departments to solve his problems?
What kind of help is most often needed?
Is this help offered freely?
How does respondent get in touch with other departments?
Is it easy to get in touch with them?

Relationship with staff departments: does respondent get adequate support from the staff side?

Any departments with which relationships particularly good?
Any particularly bad?

7. Costs

What are the main costs incurred in respondent's section(s)/department?
Does bearing on-costs create a problem?
Is there a problem keeping inside budgeted costs?
Is this generally the case?

8. Work Standards

What work standards are there in respondent's section(s)/department?
Who sets them?
How often are they revised?
Are any jobs known for having tight or loose standards?

9. Work Flow Changes

Does respondent raise or recommend: schedule changes?
engineering changes?
process deviations?

Does he manage the 'pink list' status and priority sheets?

10. Labour

Respondent's general views about labour at Halewood.
(Probe: It has been suggested that Merseyside labour is unreliable. Is it?)

Can respondent compare Halewood labour with labour at any other Ford locations he has knowledge of?

11. Ford of Europe

Does Halewood's being part of the Ford of Europe network affect respondent's job?
Is he in touch with any other Ford locations?
Any problems caused in his job by materials received from Genk or Cologne?
How does respondent rate Halewood compared with these other locations?

12. General

Does respondent feel that he knows enough about what is going on in the plant as a whole?

Any aspects of respondent's job he would like to see changed?
Is this likely to come about?
What are the obstacles?

As regards the plant in general would respondent like to see any changes?
(Probe: That would improve general performance. Is this likely? What are possible obstacles?)

Changes in management structure?

INTERVIEW SCHEDULE

MAIN SESSION

CODE NUMBER _____ DEPT _____ PLANT _____

JOB TITLE _____ SALARY GRADE ____ SEX ____ AGE ____

Length of time with Ford _____

Supervisors working in different jobs are concerned to differing degrees with current and future problems. I am interested in learning how your time is divided between the minute by minute demands of your job and problems of a longer range nature. Would you look at this scale ... and tell me what percent of your time is devoted to working on matters within each of the periods listed?

___ % OF THE TIME I CONCERN MYSELF WITH THE MINUTE BY MINUTE DEMANDS OF THE JOB

___ % OF THE TIME I CONCERN MYSELF WITH PROBLEMS THAT WILL BE CROPPING UP IN AN HOUR OR SO

___ % OF THE TIME I CONCERN MYSELF WITH PROBLEMS THAT WILL BE CROPPING UP LATER IN THE DAY

___ % OF THE TIME I CONCERN MYSELF WITH PROBLEMS THAT WILL BE CROPPING UP LATER IN THE WEEK

___ % OF THE TIME I CONCERN MYSELF WITH PLANNING UP TO A MONTH AHEAD

___ % OF THE TIME I CONCERN MYSELF WITH LONG RANGE PLANNING OF MORE THAN A MONTH AHEAD

Within your department decisions are made all the time about important shop floor problems. I'd like to find out what influence the various levels of supervision - superintendent, general foreman and foreman - have over each other when it comes to making these decisions.

To begin with the level of superintendent, how much influence do you feel the superintendent has over the ... when it comes to these decisions?

	Hardly any or no influence	Not much influence	Some influence	Quite a lot of influence	A great deal of influence
Superintendent	☐	☐	☐	☐	☐
General Foreman	☐	☐	☐	☐	☐
Foreman	☐	☐	☐	☐	☐

How much influence does the General Foreman have over the ... when it comes to making these shop floor decisions?

Superintendent	☐	☐	☐	☐	☐
General Foreman	☐	☐	☐	☐	☐
Foreman	☐	☐	☐	☐	☐

How much influence does the Foreman have over the ... when it comes to making these shop floor decisions?

Superintendent	☐	☐	☐	☐	☐
General Foreman	☐	☐	☐	☐	☐
Foreman	☐	☐	☐	☐	☐

I'd like to turn now to the working relationships you have with other departments in the factory. Can you tell me the departments that you have working relationships with?

(List named departments in grid)

Infront of you is a list of seven statements which could be used to describe working relationships between departments. Would you look at this list and select the statement that best describes the working relationship that you have with ...

(Repeat for each listed department)

1. SOUND. FULL UNITY OF EFFORT IS ACHIEVED
2. ALMOST FULL UNITY
3. A BIT BETTER THAN AVERAGE RELATIONS
4. AVERAGE RELATIONS. SOUND ENOUGH TO GET BY EVEN THOUGH THERE ARE SOME PROBLEMS OF ACHIEVING JOINT EFFORT
5. A BIT OF A BREAKDOWN IN RELATIONS
6. RELATIONS ARE BAD
7. COULD NOT BE WORSE. BAD RELATIONS. SERIOUS PROBLEMS EXIST THAT ARE NOT BEING SOLVED

How often do you come into contact with supervisors from each of these departments? First for ...

1. HARDLY EVER
2. ONCE OR TWICE A MONTH
3. ONCE A WEEK
4. SEVERAL TIMES A WEEK
5. DAILY
6. SEVERAL TIMES A DAY
7. CONTINUALLY THROUGHOUT THE DAY

If these departments don't do their job properly how much does it effect you?

1. A GREAT DEAL
2. QUITE A LOT
3. SOME
4. NOT MUCH
5. HARDLY ANY

And if you did not do your job properly how much would it effect them?

1. A GREAT DEAL
2. QUITE A LOT
3. SOME
4. NOT MUCH
5. HARDLY ANY

How far would you say that you have to bargain with these departments or can you generally get what you need from them without bargaining. Use this card to describe the relationship with each department as I go through them.

1. I HAVE TO BARGAIN FOR EVERYTHING I GET
2. GENERALLY SPEAKING YOU HAVE TO BARGAIN WITH THEM
3. A CERTAIN AMOUNT OF BARGAINING GOES ON
4. I DON'T HAVE TO DO MUCH BARGAINING
5. I DON'T HAVE TO BARGAIN AT ALL

When you contact supervisors in these departments it is possible for you to have various kinds of discussions with them. You may meet just to pass a few words in a routine way; or you may be engaged in lengthy discussions about new procedures, altering plans and schedules and so on.
So for each of the listed departments could you describe the kind of contact you have with the supervisors in that department. First for ...

1. NO CONTACT
2.
3. STANDARDISATION: STANDARD PROCEDURE FOR INTERRELATION
4.
5. PLAN: DISCUSSION OF HOW BEST TO IMPLEMENT PLANS, SCHEDULES, ETC.
6.
7. MUTUAL ADJUSTMENT: HIGH LEVEL OF DIALOGUE, FORMING PLANS, NEW PROCESSES, ETC.

Can I ask you now about the expectations that you have of your working relationships with these various departments. Firstly, what kind of cooperation you feel they ought to be giving to you; and secondly the kind of cooperation you feel that you should be giving to them.

First, for the cooperation that they should be giving to you. For ... what are the things they should be doing for you? And can you use this card to say how strongly you feel they should do this for you?

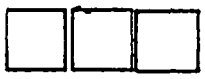
1. THEIR ONLY FUNCTION IN THE PLANT IS TO GIVE US THIS COOPERATION
2. EVEN THOUGH THEY HAVE THEIR OWN PROBLEMS OUR NEEDS SHOULD COME FIRST
3. THEY SHOULD GIVE US THIS COOPERATION
4. EVEN THOUGH I WANT THEIR COOPERATION, I RECOGNISE THAT THEY HAVE THEIR OWN PROBLEMS
5. THEIR OWN PROBLEMS SHOULD COME BEFORE MINE
6. WE SHOULD NOT EXPECT THEM TO GIVE US THIS HELP

Now for the cooperation you should be giving to these other departments.
For ... what are the things you should be doing for them? And can you use this card to say how strongly you feel you should do this for them?

1. OUR ONLY FUNCTION IN THE PLANT IS TO GIVE THIS COOPERATION
2. EVEN THOUGH WE HAVE OUR OWN PROBLEMS THEIR NEEDS SHOULD COME FIRST
3. WE SHOULD GIVE THEM THIS COOPERATION
4. EVEN THOUGH WE SHOULD GIVE THEM THIS COOPERATION, THEY MUST RECOGNISE THAT WE HAVE OUR OWN PROBLEMS
5. OUR OWN PROBLEMS COME BEFORE THEIRS
6. THEY SHOULD NOT EXPECT US TO GIVE THEM THIS HELP

DEPARTMENT	INTEGRATION SCORE	FREQUENCY	DEPENDENCE US ⇧ DEPT	DEPENDENCE US ⇩ DEPT	BARGAINING	MEANS OF COORDINATION	INTERDEPT EXCHANGES US ⇦ DEPT	SCORE	INTERDEPT EXCHANGES US ⇨ DEPT	SCORE

APPENDIX C



SELF-COMPLETE QUESTIONNAIRE

MAIN SESSION

This questionnaire falls into two parts. The first part consists of eight questions and each has a different method of answering. There are instructions with each question telling you how to answer it and we ask you to read these instructions carefully before answering. The second part consists of a series of simple statements which you are asked to agree or disagree with. Again the method of answering will be explained.

Please answer all the questions. Do not miss out any of the pages, they are numbered to help you avoid this. Do not take too long over any one question, just make sure that you understand it then answer it - your first answer is likely to be your best.

This questionnaire and your answers are completely confidential. We will not use this material in any way that will identify individuals.

Thank You.

There are a number of different ways that you can judge how well you are doing in your job from day to day. A number of these are listed below. Would you indicate how important each of these is when it comes to looking for signs as to how well you are doing your job?

Put a tick in one of the boxes for each choice to show how important it is for you.

	Very Important	Fairly Important	A bit Important	Not very Important
My immediate boss	☐	☐	☐	☐
The man immediately above my boss	☐	☐	☐	☐
Other sources in management	☐	☐	☐	☐
Statistics (such as schedules, costs, etc.)	☐	☐	☐	☐
Meetings in which I take part	☐	☐	☐	☐
Operator performance	☐	☐	☐	☐
Feedback from other people in my department	☐	☐	☐	☐
Feedback from people in other departments	☐	☐	☐	☐
Personal satisfaction	☐	☐	☐	☐
Good relations with the people who work under me	☐	☐	☐	☐
Other (please specify)	☐	☐	☐	☐

_____

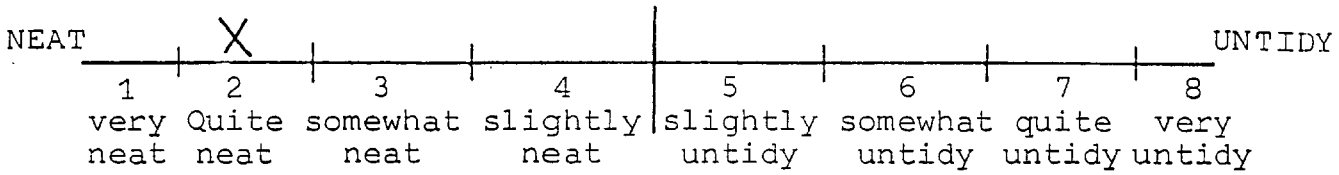
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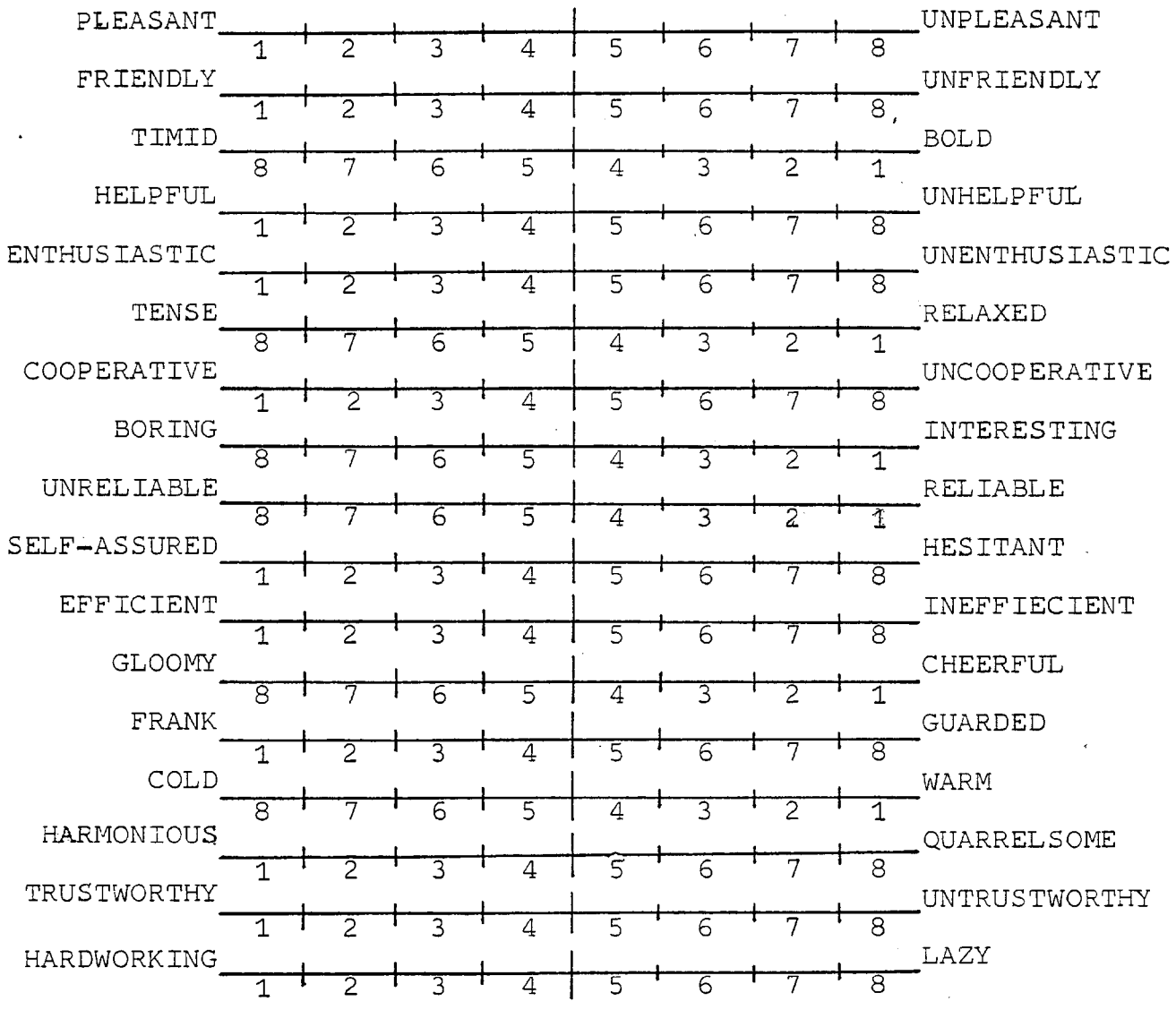
People differ in the ways they think about those with whom they work, and this may be important when it comes to working with others.

We should like you to think of the person <u>with whom you can work least well</u>. He may be someone you work with now or someone you knew in the past. He does not have to be the person you <u>like</u> least well, but should be the person with whom you had the most difficulty in getting a job done.

There are pairs of words listed below, please describe this person by placing an 'X' in one of the eight spaces on the line. For instance, if you think of this person as being quite neat you would put an 'X' in the second space along the line NEAT——UNTIDY, like this:



Would you now fill in the following pairs of words. Look at the words at both ends of the lines before putting in your 'X'. Please remember there are <u>no right or wrong answers</u>, it is your opinions we are after. Work rapidly since your first answer is likely to be your best. And remember, you are describing the person <u>with whom you can work least well</u>.



We would now like you to think of the person with whom you can work best. Again, he may be someone you work with now or someone you knew in the past. He does not have to be the person you like best, but should be the person you are or were best able to work with.

The same pairs of words are repeated below, so would you describe this person by placing an 'X' in one of the eight spaces for each line. Remember, you are describing the person with whom you can work best.

PLEASANT	1	2	3	4	5	6	7	8	UNPLEASANT
FRIENDLY	1	2	3	4	5	6	7	8	UNFRIENDLY
TIMID	8	7	6	5	4	3	2	1	BOLD
HELPFUL	1	2	3	4	5	6	7	8	UNHELPFUL
ENTHUSIASTIC	1	2	3	4	5	6	7	8	UNENTHUSIASTIC
TENSE	8	7	6	5	4	3	2	1	RELAXED
COOPERATIVE	1	2	3	4	5	6	7	8	UNCOOPERATIVE
BORING	8	7	6	5	4	3	2	1	INTERESTING
UNRELIABLE	8	7	6	5	4	3	2	1	RELIABLE
SELF-ASSURED	1	2	3	4	5	6	7	8	HESITANT
EFFICIENT	1	2	3	4	5	6	7	8	INEFFICIENT
GLOOMY	8	7	6	5	4	3	2	1	CHEERFUL
FRANK	1	2	3	4	5	6	7	8	GUARDED
COLD	8	7	6	5	4	3	2	1	WARM
HARMONIOUS	1	2	3	4	5	6	7	8	QUARRELSOME
TRUSTWORTHY	1	2	3	4	5	6	7	8	UNTRUSTWORTHY
HARDWORKING	1	2	3	4	5	6	7	8	LAZY

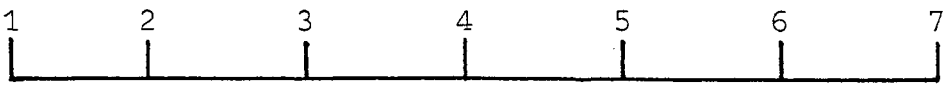
Would you look at these headings:

- ☐ DEVELOPING MY OWN ABILITIES
- ☐ DEVELOPING NEW PRODUCTS
- ☐ DEVELOPING NEW PROCESSES
- ☐ KEEPING THE JOB TO PROCESS
- ☐ KEEPING THE LINE MOVING
- ☐ MAINTAINING THE QUALITY OF WORKMANSHIP
- ☐ KEEPING COSTS DOWN
- ☐ FULFILLING PRODUCTION SCHEDULES
- ☐ TURNING OUT A SOUND JOB

In your job you will be concerned with some of these, though probably not all of them. Please go through them and place a number in the box by the side of <u>each</u> one to indicate how important each of them is to you.

Use the numbers in the following scale to fill in the boxes:

VERY IMPORTANT FOR ME — NOT IMPORTANT AT ALL FOR ME



People in different jobs are evaluated in different ways. The statements listed below give six common ways of judging how well a person does his job. Choose the three that best describe how you are actually evaluated in your job. Number the three that you choose 1, 2 and 3 to indicate the order of their importance (1 being the most important and 3 the least important).

- ☐ I AM EVALUATED ON THE EFFECTIVENESS OF MY WORKING RELATIONS WITH OTHER DEPARTMENTS
- ☐ I AM EVALUATED ON THE EFFECTIVENESS OF MY WORKING RELATIONS WITH PEOPLE IN MY OWN DEPARTMENT
- ☐ I AM EVALUATED ON THE PERFORMANCE OF MY OWN SECTION
- ☐ I AM EVALUATED ON THE PERFORMANCE OF THE WHOLE DEPARTMENT
- ☐ I AM EVALUATED ON MY LOYALTY TO THE DEPARTMENT
- ☐ I AM EVALUATED ON MY CONTRIBUTION TO WIDER PLANT OBJECTIVES
- ☐ OTHER(PLEASE SPECIFY) _____

The same choices are written out again below. We would like you to choose the three that you think ideally should describe the ways you are evaluated. Once again number your three choices 1, 2 and 3 to indicate the order of their importance.

- ☐ I SHOULD BE EVALUATED ON THE EFFECTIVENESS OF MY WORKING RELATIONS WITH OTHER DEPARTMENTS
- ☐ I SHOULD BE EVALUATED ON THE EFFECTIVENESS OF MY WORKING RELATIONS WITH PEOPLE IN MY OWN DEPARTMENT
- ☐ I SHOULD BE EVALUATED ON THE PERFORMANCE OF MY OWN SECTION
- ☐ I SHOULD BE EVALUATED ON THE PERFORMANCE OF THE WHOLE DEPARTMENT
- ☐ I SHOULD BE EVALUATED ON MY LOYALTY TO THE DEPARTMENT
- ☐ I SHOULD BE EVALUATED ON MY CONTRIBUTION TO WIDER PLANT OBJECTIVES
- ☐ OTHER (PLEASE SPECIFY) _____

This part of the questionnaire consists of a series of statements about your feelings on various aspects of your job. Each statement is followed by five boxes and each box corresponds to a different answer to the statement. The answers are:

STRONGLY AGREE	AGREE	NO FEELINGS EITHER WAY	DISAGREE	STRONGLY DISAGREE

We would like you to place a tick (✓) in the box that best expresses your feelings about the statement.

Consider each question as completely separate from the others. Please answer all the questions and do not spend too long on any one question.

	STRONGLY AGREE	AGREE	NO FEELINGS EITHER WAY	DISAGREE	STRONGLY DISAGREE
Lots of things go wrong in this job but there are procedures for handling most of them.	☐	☐	☐	☐	☐
Generally speaking, I have the authority I need to carry out my job.	☐	☐	☐	☐	☐
My bosses do not always keep me informed about matters that might concern me.	☐	☐	☐	☐	☐
Things happen all the time in this job that are unexpected and tricky to handle.	☐	☐	☐	☐	☐
The departments that I rely on for help and assistance do not give me as much support as they should.	☐	☐	☐	☐	☐
My department has a lot of influence in its general dealings with other departments.	☐	☐	☐	☐	☐
Other departments are often unpredictable when it comes to answering requests.	☐	☐	☐	☐	☐
It is difficult to plan very far ahead because problems crop up all the time.	☐	☐	☐	☐	☐
The pressure is not so bad that you can't take a breather now and again.	☐	☐	☐	☐	☐
People from other departments often keep information from you if it is in their interests to do so.	☐	☐	☐	☐	☐
The problems that we get here are mainly routine but there are plenty of them.	☐	☐	☐	☐	☐
The engineers in this firm do <u>not</u> get the privileges that should go with their responsibilities.	☐	☐	☐	☐	☐

	STRONGLY AGREE	AGREE	NO FEELINGS EITHER WAY	DISAGREE	STRONGLY DISAGREE
The problems that I get in my job are mainly of a routine nature.	☐	☐	☐	☐	☐
Generally speaking, I do not find that my work puts too much of a strain on me.	☐	☐	☐	☐	☐
You cannot always trust people from other departments to be open about everything.	☐	☐	☐	☐	☐
Although we get some problems, most of the time the job runs smoothly.	☐	☐	☐	☐	☐
In this firm the engineers are the last to hear about any changes that are likely to take place.	☐	☐	☐	☐	☐
The people above me will generally stand up for me when it is necessary.	☐	☐	☐	☐	☐
I need to spend quite a bit of effort thinking up new ways of tackling problems.	☐	☐	☐	☐	☐
In this firm the cooperation between departments that can help each other is very good.	☐	☐	☐	☐	☐
A lot of problems happen in this job that you could say are outside the normal routine.	☐	☐	☐	☐	☐
Even when things go wrong here it is fairly straightforward to put them right.	☐	☐	☐	☐	☐
You can never relax for a minute in this job.	☐	☐	☐	☐	☐
You often find that people from other departments will come up and tell you useful little items of information.	☐	☐	☐	☐	☐
You have to work on a day to day basis in this job.	☐	☐	☐	☐	☐

	STRONGLY AGREE	AGREE	NO FEELINGS EITHER WAY	DISAGREE	STRONGLY DISAGREE
I feel that I can trust my bosses to take advantage of opportunities that come up to further my interests.	☐	☐	☐	☐	☐
In this company you are easily able to get the help from other departments you need for doing your job.	☐	☐	☐	☐	☐
You generally know how other departments will react even if you cannot rely on their cooperation.	☐	☐	☐	☐	☐
Generally things go according to plan and not too many difficulties crop up.	☐	☐	☐	☐	☐
Those above me are constantly putting pressure on me.	☐	☐	☐	☐	☐
I always feel happy about being frank in discussions with people from other departments.	☐	☐	☐	☐	☐
Even though we get lots of problems, one week is pretty much the same as the next.	☐	☐	☐	☐	☐
There is a status that goes with the job of an engineer that is worth a lot.	☐	☐	☐	☐	☐
It is sometimes difficult to know what to do when things go wrong.	☐	☐	☐	☐	☐
You do not feel free to discuss problems with your bosses because they hold it against you later on.	☐	☐	☐	☐	☐
You often have to exaggerate the seriousness of a request if you want to get anything done about it.	☐	☐	☐	☐	☐